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DISEASES CAUSED BY BACTERIA AND FUNGI

LINCOLN, H. (1950.) **Intravenous aureomycin treatment in acute staphylococcic mastitis.**—*J. Amer. vet. med. Ass.* **116.** 48. **2808**

An account of the treatment of a severe case of mastitis caused by a haemolytic staphylococcus. A course of aureomycin, together with sulphamethazine and penicillin hydrochloride was given over a period of five days without any beneficial result. The dose of aureomycin was then increased from a dose of 200 mg. into the affected quarter to 5 g. intravenously and 2·5 g. for a further 4½ days and three injections of 1·5 g. of streptomycin. The condition cleared up and milk yield became normal.—J. E. LANCASTER.

HULSE, E. C. (1951.) **The treatment with aureomycin of acute bovine staphylococcal mastitis.**—*Vet. Rec.* **63.** 439–442. [Author's summary slightly modified.] **2809**

The treatment of ten cows with acute haemolytic staphylococcal mastitis in 14 quarters is reported. Half of all the affected quarters were restored to a "near" normal condition after treatment with aureomycin alone or in conjunction with penicillin, sulphamezathine or dibromopropamidine.

GRINI, O. (1948.) **Studies on hemolytic streptococci with special regard to their occurrence in pyogenic processes in domestic animals.**—*Thesis, Oslo University.* pp. 206. [In English.] **2810**

This is a comprehensive and detailed treatise on haemolytic streptococci, particularly from a veterinary point of view, and contains a fairly extensive and critical review of the literature. An account is given of cultural and biological methods and classification systems and of the results of the examination and grouping of a total of 544 Norwegian strains, of which 416 were derived from purulent, catarrhal and/or septicaemic lesions in domestic animals, including foxes, mink, rabbits, mice and poultry, and 128 from acute or chronic cases of mastitis in cows. Part I (46 pp.) on the general biology of the haemolytic streptococci and methods of classification, deals with the characters of the organisms, their pathogenicity and the storage of the strains. Part II (137 pp.) deals with the strains G. had isolated, their grouping, immunology, and general characters. In an addendum there are enlarged photomicrographs of 27 different colony forms and two types of capsulated organisms. Most of the work was done on group C organisms (93 pp.).

—GUSTAV NAERLAND.

WATTS, P. S. (1951.) **Mastitis in Ayrshire from 1938 to 1950.**—*Vet. Rec.* **63.** 32–39. **2811**

In 1939 the over-all infection rate for clinical mastitis in cattle in Ayrshire was 33·5% and almost all cases were caused by *Streptococcus agalactiae*. A 1950 survey revealed that 11·8% were infected with *Str. agalactiae* and there was no increase in the infection rates for other types of mastitis. Reduction in the incidence of mastitis is attributed to improvement in milking practices on many farms and the use of penicillin and sulphanilamide in the treatment of clinical cases.—L. M. JONES.

SPENCER, G. R., SIMON, J. & SCHENK, M. L. (1950.) **Systematic treatment and control of streptococcic mastitis.**—*Vet. Med.* **45.** 345–348. **2812**

The results of mastitis control programmes, combining systematic treatment with penicillin and hygienic measures, in five herds are described.—A. MAYR-HARTING.

ADA, G. L. & French, E. L. (1950.) **Purification of the receptor-destroying enzyme of *V. cholerae*.**—*Aust. J. Sci.* **13.** 82. **2813**

A method is described for the purification of receptor-destroying enzyme (RDE) of *V. cholerae*. After culturing, the organisms are destroyed and the agar removed. RDE is then precipitated by methanol at 0° C. and after

centrifugation and dialysis it is adsorbed on to and eluted from red cells. The enzyme is then precipitated by 60% saturation with ammonium sulphate and the precipitate suspended in 0·05% $CaCl_2$. The suspension is finally dialysed for 48 hours against two changes of the diluent and centrifuged at 18,000 *g* for one hour.

—D. F. STEWART.

BARNER, R. D. & OBERST, F. H. (1950.) **Vibrionic abortion in cattle.**—*Vet. Med.* **45.** 389–391. **2814**

Organisms possessing the morphological and cultural characteristics of *Vibrio fetus* were recovered from three aborted foetuses in two herds of dairy cattle in Kansas. Thiol medium was used for isolation and cultivation of the organism.—L. M. JONES.

JANSEN, J. & KUNST, H. (1951.) Het ei als voedingsbodem voor *Vibrio foetus*. **[Cultivation of *Vibrio fetus* on incubated hens' eggs.]**—*Tijdschr. Diergeneesk.* **76.** 178–180. [Abst. from English summary.] **2815**

The organism grows easily in the allantoic fluid of 7–9 day eggs and there is a rich growth three days after inoculation. The organism can also develop in dead embryos, but the allantoic fluid is then often so cloudy that it is difficult to detect the organism microscopically.

PEARCE, T. W. & POWELL, E. O. (1951.) **A selective medium for *Bacillus anthracis*.**—*J. gen. Microbiol.* **5.** 387–390. [Abst. from authors' conclusion.] **2816**

A nutrient medium containing lysozyme and haematin is described which permits free growth of *B. anthracis* while suppressing more than 95% of other sporulating aerobes.

ZÁLEŠÁK, M. (1948.) Studie o sterilisačním účinku sublimátu, chlorového vápna a chloraminu na anthrakové spory. **[Resistance of anthrax spores to perchloride of mercury, chlorinated lime and chloramine.]**—*Čas. československ. Vet.* **3.** 398–408. **2817**

A report on the resistance to heat and chemicals of strains of anthrax spores from horses, cattle and rats. Exposure to steam at 102° C. was lethal within 5, 10 and 7 min. respectively to the strains from these animals.

0·1% solution of perchloride of mercury killed spore suspensions in water within 31–47 hours, 28–32 hours and 8–17 hours at 3°–5°, 16° and 37° C. respectively. Chlorinated lime in 2% suspension was lethal within 15–21 hours; a 6% suspension within 3–4 hours. Chloramine in 2% solution killed the spores within 1–2 hours at temperatures of 16° and 37° C. and within 46–53 hours at 3°–5° C.

In liquid manure the spores survived for 38–46 hours after treatment with a 6% suspension of chlorinated lime at 16° C. The 2% chloramine solution killed spores within 3·5–5 hours. Perchloride of mercury was unsuitable for the disinfection of liquid manure because it caused coagulation of the albumin content. Chlorinated lime was recommended as the most economical disinfectant, although it is less powerful than chloramine.—E. G.

MACRI, G. (1950.) Di un caso di tubercolosi primitiva della vulva in una bovina. **[A case of primary tuberculosis of the vulva in a cow.]**—*Zootec. Vet., Milan.* **5.** 656–661. [English and French summaries. Abst. from English summary.] **2818**

A description of primary tuberculosis of the vulva in a cow.

STRZELECKI, B. (1949.) Grużlicze zmiany w węzłach chłonnych śródpiersiowych u bydła przycyną wzdęcia żwacza. **[TB. lesions in the mediastinal lymph nodes as the cause of bloat in cattle.]**—*Med. weteryn.* **6.** 476–477. **2819**

A bull with tympany suspected to be associated with a "foreign body" did not respond to expectant treatment and when killed a month later was found to be tuberculous.

—JOHN R. MITCHELL.

FRESEN, O. (1950.) Untersuchungen zur Struktur und Genese des Tuberkels als Beitrag zur tuberkulösen Entzündung. I. Mitteilung. Die Epitheloidzelle. II. Mitteilung. **[Contribution to the pathology of TB. Parts I & II.]**—*Virchows Arch.* **317.** 491–516 & 517–546. **2820**

Use of the silver impregnation method revealed the characteristic reticular fibre structure of the tubercle, the development of which is linked with the epithelioid cells. The latter are to be regarded as the formation cells of the tubercle reticulum.

The constant presence of an argyrophilic reticulum in the cellular tubercle reveals the syncytial-fibrillary character of this specific granulation tissue. In addition to the epithelioid cells, giant cells are to be regarded as giving rise to the fibres. The reticular origin of tubercle cells excludes their derivation from differentiated connective-tissue cells and ordinary endothelium.

—W. R. BETT.

GIFFORD, D., MCKINLEY, F. & HUNTER, C. A. (1951.) **A comparative study of methods of isolating Mycobacterium tuberculosis.**—*Amer. J. publ. Hlth.* **41.** 164–167. [Authors' summary copied *verbatim*.] **2821**

Specimens digested with trisodium phosphate gave more positive cultures than those treated with sodium hydroxide. A slightly greater number of positive cultures were obtained on Lowenstein's medium, regardless of type of digestion.

The percentage of contamination on the specimens treated with sodium hydroxide was 1·03 per cent while 3·85 per cent of cultures were contaminated when treated with trisodium phosphate.

Acid-fast bacilli were found in 12·85 per cent of the 3,788 specimens by microscopic examination. Culturally there were 24·04 per cent of specimens positive.

TISON, F. (1950.) Étude biologique du liquide de condensation produit au cours de la coagulation des milieux solides à l'œuf type Löwenstein ; son influence sur la végétation du bacille de Koch. [**The effect of water of condensation from egg media on growth of** *Mycobact. tuberculosis.*]—*Ann. Inst. Pasteur.* **78.** 800–803. **2822**

The disadvantage resulting from the presence of water of condensation is avoided by T's method of centrifuging the inoculum.

The liquid first formed in the culture tube is distilled water, but this subsequently becomes a solution of substances from the solid medium and in the case of a medium containing glycerin contains 0·75% glycerin. This solution has no inhibiting action, is itself a favourable culture medium and its " wetting " action encourages the growth of the colonies. Any traces of tarry matter which may have been produced by heat sterilization of the cotton wool and which this solution might dissolve have no harmful effect. —W. R. BETT.

MAASSEN, W. & HEYSE, E.-H. (1950.) Untersuchungen über die Darstellbarkeit von Tuberkelbakterien. [**Staining of tubercle bacilli.**]—*Zbl. Bakt. I.* (*Orig.*) **156.** 238–249. [English, French and Russian summaries.] **2823**

The methods of staining tubercle bacilli with alkaline fuchsine as used by Maassen and Knothe were discussed. Sodium carbonate was found to be the most effective alkaline salt, and in further studies on the pH value using boric acid, the borate of fuchsine gave slightly better results than those obtained when phenol or sodium carbonate was used, the colour of the stained bacilli being a bright red.

LUKE, D. (1951.) **Studies in tuberculosis sensitivity in the pig.**—*Vet. Rec.* **63.** 339–346. [Abst. from author's summary.] **2824**

The total white cell count in the normal pig fluctuates within wide limits. In a series of 110 samples from pigs of various ages it averaged 19,866 cells per ml.

Sensitivity to dead avian type organisms appears to wane fairly rapidly as judged by tests using 1 : 1,000 dilution of tuberculin. Sensitivity to live avian type organisms can readily be established, but there is evidence that it tends to wane fairly quickly. A high degree of sensitivity follows the intraperitoneal inoculation of material containing live bovine type organisms; it was still of a high order after 227 days.

SEIBERT, B. & KENT, P. W. (1950.) **Analyses for certain amino-acids in tuberculin protein fractions.**—*Brit. J. exp. Path.* **31.** 691–694. [Authors' summary copied *verbatim.*] **2825**

At least ten of the ordinary amino-acids have been found by paper chromatography in two tuberculin protein fractions, A and C, isolated from unheated culture filtrates of tubercle bacilli grown in synthetic medium. More tryptophan and phenolic groups were found in the unhydrolysed A than in the C fractions. Still more phenolic groups were found after hydrolysis in the A fractions, but not in the C fractions. Since the A fractions are more potent biologically than the C fractions a possible connection between the presence of these groups and potency is suggested.

HARNACH, R. (1950.) Ovlivnění tuberkulosy fermentovaným antigenem tuberkulosním. [**The influence of specific fermented antigen on TB.**]—*Čas. československ. Vet.* **5.** 480–482. [French and Russian summaries.] **2826**

This work is based on previous observations by the author and others that Old Tuberculin, if acted upon by certain micro-organisms, particularly fungi, loses its properties as an allergen, without loss of its immunizing power. In the present work the O.T. employed was acted on by *Saccharomyces ellipsoideus.* In g. pigs the protective action of this preparation against infection with tubercle bacilli was clearly demonstrated. Tuberculin-positive cows, after treatment with this fermented tuberculous antigen, improved in health, and many became tuberculin-negative. Some observations show that a tuberculin reaction due to vaccination with BCG also disappears after treatment with the fermented antigen.—A. MAYR-HARTING.

SANDAGE, C., BRANDT, N. & BIRKELAND, J. M. (1951.) **Erythrocyte destruction in tuberculous animals following tuberculin injection.**—*J. infect. Dis.* **88.** 9–16. [Authors' summary copied *verbatim.*] **2827**

The intravenous injection of small quantities of tuberculin into rabbits with active tuberculosis results in a destruction of erythrocytes, accompanied by significant changes in mean corpuscular volume (M.C.V.).

Changes in M.C.V. and erythrocyte counts, similar in nature but differing in degree, occur in rabbits during the course of ultimately fatal infections without the injection of tuberculin. It is suggested that such effects are due to liberation of tuberculin from foci of infection.

The possibility that a similar process of red cell destruction may operate in human tuberculosis is discussed.

MILZER, A., LEVINSON, S. O. & LEWIS, M. B. (1950.) **Immunization of mice with ultraviolet killed tuberculosis vaccines.**—*Proc. Soc. exp. Biol., N.Y.* **75.** 733–736. [Authors' summary copied *verbatim.*] **2828**

Several lots of ultraviolet-killed virulent human type tubercle bacilli (H37Rv) vaccine were prepared which were equal or slightly superior in antigenic potency to a standard BCG vaccine on the basis of dba mouse vaccination tests. The irradiated vaccine preserved with 1 : 10,000 merthiolate was stable and retained its immunogenicity for as long as 12 months after preparation.

SOLOTOROVSKY, M., GREGORY, F. J. & STOERK, H. C. (1951.) **Loss of protection by vaccination following cortisone treatment in mice with experimentally induced tuberculosis.**—*Proc. soc. exp. Biol. N.Y.* **76.** 286–288. [Authors' summary slightly modified.] **2829**

Treatment with cortisone overcame the beneficial effect of vaccination in mice infected with a highly virulent strain of *M. tuberculosis*, human type, but did not significantly enhance the lethality in non-vaccinated mice. The treatment increased the susceptibility of mice to infection with *M. tuberculosis* of reduced virulence.

LEVINE, M. (1951.) **Hemagglutination of tuberculin sensitized sheep cells in Hansen's disease (Leprosy).**—*Proc. Soc. exp. Biol., N.Y.* **76.** 171–173. [Author's summary modified.] **2830**

The hemagglutination titers of active, bacteriologically positive lepers were significantly higher than those of arrested, bacteriologically negative, cases, and frequently much higher than those encountered in the active cases of tuberculosis examined. The immunological response against antigenic components of the tubercle bacillus elicited by infection with leprosy appears to be very marked and distinct. The inability to grow *Mycobacterium leprae* has hampered serological studies of leprosy. The hemagglutination technic of Middlebrook and Dubos provides a laboratory tool which may be very useful in future studies of this entity.

DOYLE, T. M. & SPEARS, H. N. (1951.) **A Johne's disease survey.**—*Vet. Rec.* **63.** 355–359. **2831**

A total of 3,815 samples of bovine faeces obtained from 30 counties were examined microscopically for *M. johnei*; of these 876 (25 per cent.) were positive, 743 (19 per cent.) suspicious and 2,096 (54 per cent.) negative. The general incidence in Britain was discussed, and the data were analysed with regard to age, sex, breed and geographical distribution.

HAUDUROY, P. & ROSSET, W. (1948.) Action de la streptomycine sur les bacilles paratuberculeux. **[Action of streptomycin on Johne's bacillus.]**—*Ann. Inst. Pasteur.* **75.** 69–70. **2832**

Of 58 strains of *Mycobact. johnei* tested approximately 79% were sensitive to doses of 10 μg. per ml. of streptomycin. Three strains were resistant to 1,000 μg per ml. but sensitive to 10,000 μg. per ml. The original strains of two mutant strains included in the latter group were more sensitive than the mutants.

—W. R. BETT.

OOSTENBRUG, W. & TALSMA, D. (1951.) Een proef met para-amino-salicylzuur bij een rund met paratuberculose. **[p-Aminosalicylic acid in the treatment of Johne's disease.]**—*Tijdschr. Diergeneesk.* **76.** 452–453. [Abst. from English summary.] **2833**

PAS in daily doses of 75 g. for a period of one month, was ineffective in a heifer with Johne's disease.

BARR, M. (1950.) **The effect of injection of diphtheria prophylactic into apparently normal horses.**—*J. exp. Path.* **31.** 615–625. **2834**

Just over 40% of a thousand normal horses with less than 0·0005 unit per ml. of circulating diphtheria antitoxin produced some antitoxin within ten days of receiving an injection of diphtheria A.P.T. [alum-precipitated toxoid]. Most horses with titres of 1 unit per ml. or more ten days after injection produced a secondary response with a fall in value at 28 days, but in those with lower ten day values there was a considerable subsequent rise, thus indicating an intermediate response. The relation between the antitoxic responses measured after 10 and 28 days depends upon the dose given, in relation to the pre-existing degree of potential immunity. Differences in response are reduced after a second injection, but further doses would be needed in

some animals to establish sufficient basal immunity to ensure a secondary response. The results suggest that in a human epidemic, persons who had had no prophylactic injections since infancy might require at least two boosting doses to establish protection.—C. M. S.

DELPY, L.-P. (1950.) Standardisation de la malléine à l'Institut d'Hessarek (Iran). **[Standardization of mallein in Persia.]**—*Bull. Off. internat. Epiz.* **33.** 275–278. **2835**

Each batch of mallein is compared with a known preparation in an intradermal palpebral test done on three groups of horses, one group certainly infected, one doubtful, one healthy.

—A. MAYR-HARTING.

SKODA, R. (1950.) Nové poznatky o červienke ošípaných. [*Erysipelothrix rhusiopathiae* **infection.**]—*Čas československ. Vet.* **5.** 154–157. **2836**

A brief summary of some recent literature.

—A. MAYR-HARTING.

GRAY, M. L., STAFSETH, H. J. & THORP, F., Jr. (1951.) **A four-year study of listeriosis in Michigan.**—*J. Amer. vet. med. Ass.* **118.** 242–252. [Authors' summary modified.] **2837**

Fifty-two cases of *Erysipelothrix* (*Listeria*) *monocytogenes* infection, occurring in a four-year period, were reported. In 29 of these, sheep were involved, while cattle were involved in 23. The known losses totalled more than 104 animals of both species. Certain aspects of the epidemiology of the disease are discussed.

Several techniques were presented for the successful isolation of the bacterium from both species of animals. A method of readily identifying colonies of *E. monocytogenes* was described.

The survival of *E. monocytogenes* under various conditions was presented.

OLSEN, C., COOK, R. H. & BLORE, I. C. (1950.) **The reaction of blood cells in experimental listeriosis of sheep.**—*Amer. J. vet. Res.* **11.** 29–40. **2838**

Twenty-eight sheep, of which six came from a flock in which listeriasis had occurred, were inoculated by various routes with a 24-hour tryptose broth culture of *Erysipelothrix* (*Listeria*) *monocytogenes*, using 0·1 ml. per lb. body weight for intravenous injections and administration *per os*; 0·05 ml. for arterial, subcutaneous, and intramuscular injections; and 0·25 ml. for injections into the skin, brain and bone-marrow. Several of the animals received more than one injection.

Total and differential white cell counts were made and rectal temperature was recorded. The results are given in detail, by table and by graph. Two principal factors appeared to determine the type of reaction: the route of inoculation and whether the animal had previously been exposed. Sheep inoculated *via* the carotid artery died if they had not previously been exposed to the organism; but if exposed previously their reaction depended upon the frequency of exposure. Injection *via* the median artery, however, did not cause death, suggesting that direct transit to the brain was necessary in the production of fatal listeriasis in sheep. Details are also given of the neutrophile leucocytosis, the lymphopenia, and the fever which followed inoculation by the other routes. Leucocytosis was accompanied by the appearance in the circulation of immature white cells. A small number of immature white cells were also found in the circulation of apparently normal sheep.

—G. FULTON ROBERTS.

PULLAR, E. M. (1949.) **Infectious pneumonia of pigs. II. Morbidity, incidence, type and location of lesions.**—*Aust. vet. J.* **25.** 53–60. [For part I, see *V.B.* **19.** 502.] **2839**

This report gives data on the morbidity, incidence, type, location and extent of lesions in infectious pneumonia of pigs. The order of lobe preference for pneumonic lesions was: right cardiac, right apical and left cardiac, left apical, and then followed by the other lobes.

There appeared to be an association between gastritis and infectious pneumonia and necrotic enteritis, but gastric ulceration appeared to be associated only with necrotic enteritis.

—D. C. BLOOD.

GORET, P., FERRANDO, R. & ROUMET, P. (1950.) La sulfamidothérapie. De la pasteurellose et des salmonelloses aviares. **[Sulphonamides in treatment of avian pasteurellosis and salmonellosis.]**—*Cah. Méd. vét.* **18.** 33–47. **2840**

At a dosage of 0·5% of the feed sulphamethylpyrimidine yields a concentration of 12–15 mg. per 100 ml. blood, three times the concentration yielded by double that dosage of sulphathiazole. At this dosage, if given as soon as the first case of pullorum disease is found in an epidemic, sulphamethylpyrimidine will control the infection. Administered at this dosage for five consecutive days and repeated twice at intervals of one month the drug did not control chronic pullorum disease. However it did inhibit the growth of chicks and it also inhibited egg-laying. At this dosage this drug controlled an outbreak of *S. cholerae-suis* var. *kunzendorf* in fowls.

Sulphaguanidine, or better still, sulphathiazole at 0·5–2% of the feed controlled an outbreak of fowl cholera.—NESTA DEAN.

KRANEVELD, F. C., ERBER, M. & MANSJOER M. (1950.) Ein vermoedelijk geval van salmonellosis bij de buffel. **[Salmonella infection in buffaloes.]**—*Hemera Zoa.* **57.** 304–309. [English and French summaries. Abst. from English summary.] **2841**

Salmonella dublin was isolated from the blood and spleen of a fatal case of haemorrhagic enteritis in a water-buffalo, five others having died.

ANDERSON, G. W., STEVENSON, I. L. & GARRARD, E. H. (1951. **The role of the cockerel in the dissemination of pullorum disease.**—*Canad. J. comp. Med.* **15.** 86–88. [Authors' summary copied *verbatim.*] **2842**

Cockerels which were positive to the agglutination test, two of which exhibited *S. pullorum* in semen, failed to transmit the disease to pullorum-negative females over a mating period of 7 months, as shown by periodical agglutination tests, egg culture, necropsy and bacteriological examination of progeny.

BARRON, E. L., GARRARD, E. H. & BRANION, H. D. (1950.) **Non-pullorum agglutination reactions. V. Studies to determine the effect of decomposed fish meal included in the ration fed to fowl.**—*Canad. J. comp. Med.* **14.** 42–48. [French summary.] **2843**

Decomposed fish meal in the ration did not cause disease in either fowls or chickens, but the growth rate of chicks was lowered. Fish-meal sprayed with anaerobes related to the spoilage of such meal and mixed with the ration did not cause disease in chicks and they increased normally in weight. There was no evidence that non-pullorum reactions were in any way connected with the feeding of decomposed fish meal.—R. GWATKIN.

AUN, L. K., WRIGHT, R. A. & SEN, N. K. (1950.) *Brucella abortus* **infection in dairy cattle in Singapore.**—*Brit. vet. J.* **106.** 277–283. **2844**

The results of agglutination tests on a herd of imported dairy cattle in Singapore indicated *Brucella abortus* infection. The imported animals were either negative to two agglutination tests at the time of entry or had been previously vaccinated with strain 19. Although a relatively high percentage of positive reactors had been detected there had been few abortions at the time of publication. *Br. abortus* was isolated from one aborted foetus.

—L. M. JONES.

ERDÖL, Z. (1950.) Türkiyede Bruselloz. Etlik Enstitüsünde son on bes yıllık teçhis çalısmaları, Etlik Aglutinasyon testinin hazırlanma teknigi. çesitli teshis taamülleri hakkında müteâlâlar. **[Brucellosis in Turkey.]**—*Türk. Veterinerler Dernegi Dergisi.* **20.** 301–318. [German summary.] **2845**

The occurrence of brucellosis in Turkey in man and animals was established during the first world war by serological and allergy tests, but little is known of the real prevalence of the disease. [With the advent of a Brucellosis Centre at Ankara under the World Health Organization this position should change.] Typing of some indigenous strains of *Brucella*, mostly from bovine foetuses, two being from Merino foetuses, was attempted but results were stated to be inconclusive. Many of these formed abundant H_2S but also grew on thionin agar (1 : 50,000], thus resembling *Br. suis*. In this connexion however pig-keeping is rare in Turkey.—R. DURASAN.

HARDEMAN, P. (1951.) Diagnose en verspreiding van besmettelijk verwerpen bij runderen. **[Diagnosis of contagious abortion in cattle.]**—*Vlaam. Diergeneesk. Tijdschr.* **20.** 2–8. [English, French and German summaries.] **2846**

The milk of 192 dairy herds (1048 cows), about a quarter of all the cattle in the district within a radius of four miles from Ghent was tested by the ring test. Milk from 33 herds was positive. In 26 infected herds individual serum tests and ring tests were performed (161 cows); there was a correlation between the tests in 92%. In one case the ring test was negative and the serum test 1 : 100. In 12 cases the ring test was positive and the serum test titre less than 1 : 25.

Of 1,256 other herds only 82 were positive to the ring test.—C. A. VAN DORSSEN.

MOORE, T. (1951.) **The *Brucella abortus* ring test.**—*Canad. J. comp. Med.* **15.** 39–46. **2847**

Evidence of the presence of agglutinins was more pronounced in the ring test than in the whey agglutination test. Bichloride of mercury in a final dilution of 1 : 1000 was the best preservative tried. Non-specific reactions occurred subsequent to normal calving. In some cases they were present 10–14 days after parturition. They were also observed in some instances when the volume of milk produced in 24 hours had decreased to 10 lb. or less. Three of 22 recently-infected lactating cows reacted to the ring test first, eight to the serum agglutination test first, and 11 to both tests at the same time. The milk of six cows failed to react although the serum

titre was 1 : 160 or higher. A prozone phenomenon occurred in the milk of six infected cows by the ring method.—R. GWATKIN.

WOLFF, H. L. & DINGER, J. E. (1951.) **A new antigen of *Brucella abortus*.**—*J. Path. Bact.* **63.** 163–165. [Authors' summary copied *verbatim*.] **2848**

A strain (L) of *Brucella abortus* is described, which possesses, besides the antigens A and M, a further antigen L. This antigen envelops the organism so as to render it inagglutinable by the usual rabbit anti-brucella sera, though it is agglutinated by the sera of *Br. abortus* carriers.

Heating to 100° C. for 30 minutes renders the organisms agglutinable by rabbit anti-brucella sera, presumably by removing the L. antigen from the bacterial surface.

Parallels with the Vi antigen of *S. typhi* are indicated, and it is suggested that the L strain might be of value in the detection of carriers of *Br. abortus*.

TAVONI, V. & FACCINCANI, F. (1950.) Brucellosi sperimentale da *Brucella abortus bovis* nella gallina di " faraone ". **[Experimental infection of guinea fowl with *Brucella abortus*.]**—*Riv. Med. Vet. Zootec.* **2.** 71–88. [English and French summaries.] **2849**

In experiments on 24 guinea fowls it was found that they were not very susceptible to *Brucella abortus* cultures administered *per os*, subcutaneously, intramuscularly, intradermally or intravenously. All the birds remained clinically healthy, but some of them reacted by forming specific antibodies and yielded positive titres for periods up to two months. Even after administration *per os* of very large doses of culture the organisms were not generally demonstrable in their faeces. On one occasion, however, six g. pigs out of 56 which had been fed a diet containing faeces of guinea fowls developed the disease. The possible role of guinea fowls as carriers was discussed.—E. G.

LAWSON, J. R. (1950.) **Strain 19 and the control of brucellosis.**—*Vet. Rec.* **62.** 823–830. Discussion: pp. 830–835. **2850**

Results of vaccination with strain 19 in 47 herds over a period of five years were reported. The original incidence of infection was about 40% and infected animals were retained in the herds. Animals originally negative to the test were given one, two or three doses of vaccine as calves, heifers, or cows. Infection attributed to *Br. abortus* among vaccinated animals never exceeded 5% and was absent in the fifth year. Animals vaccinated as calves had lower agglutination titres when tested after a pregnancy than did animals re-vaccinated as heifers or cows, or animals vaccinated for the first time as heifers or cows. Reports of unsatisfactory results of strain 19 vaccination in the field were investigated. No evidence was obtained associating such vaccination with alleged infertile conditions. In discussion on the paper, A. B. Crawford compared the policy and methods of brucellosis control in the U.S.A. with that in Britain.

—L. M. JONES.

PROKŮPEK, K. (1950.) Zkušenosti s vakcinací kmenem B-19 v boji proti brucelose skotu. **[Strain 19 in the control of *Brucella abortus* infection in cattle.]**—*Čas. československ. Vet.* **5.** 73–79. **2851**

A report on the use of strain 19 vaccine in a heavily infected herd of 38 cows, 17 of which were reactors to the agglutination test before vaccination. Agglutination titres that developed after vaccination had become negative in some of these animals after eight months; in others a low titre was still present after three years. In those already positive before vaccination much higher titres had developed and the decline was very gradual. During the four years after vaccination none of the cows which had been negative reactors prior to vaccination aborted. There were three cases of abortion among those which had been positive reactors, one, however, not resulting from brucellosis.

—A. MAYR-HARTING.

DE MELLO, G. C., DANIELSON, I. S. & KISER, J. S. (1951.) **The toxic effect of buffered saline solutions on the viability of *Brucella abortus*.**—*J. Lab. clin. Med.* **37.** 579–583. [Authors' summary modified.] **2852**

The use of phosphate-buffered saline solution as a diluting fluid in the determination of viable cells in *Br. abortus* vaccines is not justified because in high dilutions of the vaccine rapid destruction of organisms occurs in this menstruum.

The toxicity of buffered saline to *Br. abortus* appeared to be a function of temperature and time of exposure. The lethal effect was more pronounced with increase of either variable. Temperatures above 18° C. for more than 15 min. were distinctly destructive. The evidence suggests that the reduced viability counts were due to a bactericidal effect of this diluting solution.

Peptone diluent gave reproducible counts with no significant changes over a two-hour period at the same working temperatures.

DALGAARD-MIKKELSEN, S., KARLSHOJ, K. & SZABO, L. (1950.) **The significance of**

hyaluronidase for the infectiosity of *Cl. welchii.* —*Acta. path. microbiol. scand.* **27.** 186–193. [In English. Abst. from authors' summary.] **2853**

In experiments with 10 hyaluronidase-positive *Cl. welchii* strains, hyaluronidase production was doubled *in vitro* when hyaluronic acid in the form of 10% bovine synovial fluid was added to the basal culture medium—5% serum broth. Six passage injections into g. pigs did not increase hyaluronidase production, either *in vivo* or *in vitro*. Addition of bull testis hyaluronidase to the inoculum caused a decrease in the mortality both when the inoculum consisted of bacteria alone or bacteria plus toxin, probably because of rapid spread of the inoculum. The question is discussed whether the ability of the bacterial hyaluronidases to break down hyaluronic acid to fermentable sugars should not primarily be regarded as more important than the spreading property.

QUORTRUP, E. R. & GORHAM, J. R. (1949.) **Susceptibility of furbearing animals to the toxins of** *Clostridium botulinum* **types A, B, C, and E.**—*Amer. J. vet. Res.* **10.** 268–271. **2854**

Twenty-five to sixty million mouse MLD of *Cl. botulinum* Type A toxin killed five out of ten mink and three out of ten ferrets in 60–216 hours. 6–55 million mouse MLD of Type B toxin killed two out of eight mink and two out of eight ferrets in 30–264 hours. Type C recently isolated cultures in 100,000 mouse MLD of toxin killed all of five mink and four out of five ferrets in 18–78 hours. Many of the mink and ferrets died suddenly with no observed symptoms, but where illness was observed the characteristic symptoms were progressive paralysis and dyspnoea. Twenty to thirty thousand mouse MLD of Type E had no effect on mink and ferrets. Foxes were resistant to large doses of Types A, B and C.

In handling outbreaks of botulism in mink and ferrets mixed toxoid of Types A, B and C should be used.—E. J. H. FORD.

OSBORNE, H. G. (1950.) **Footrot in pigs.**—*Aust. vet. J.* **26.** 316–317. **2855**

A general account of foot rot in pigs in New Zealand. Most cases occur during late spring or summer and the incidence on affected farms may vary from 20–50%. An extensive bacteriological investigation was not made, but spirochaetes, Gram-negative fusiform organisms and other bacteria were detected in smears made from the lesions on affected feet.—J. D. STEEL.

JASPER, D. E. & LEWIS, J. S. (1951.) **Coccidioidomycosis in the dog.**—*N. Amer. Vet.* **32.** 37–40. [Abst. from authors' summary.] **2856**

The authors discussed the literature and described a new case of coccidioidomycosis in a dog, characterized especially by pleural granulomas.

HIDIROGLON, M. (1950.) **Treatment of epizootic lymphangitis with formol.**—*Vet. Med.* **45.** 484 & 493. **2857**

An account of the treatment of a case of epizootic lymphangitis with formol, 5 ml. in 25 ml. water intravenously every two days over a period of 20 days. Violent colic occurred, which diminished as the treatment proceeded. It is stated that the animal was cured within 50 days.—R. MARSHALL.

RANNAUD. (1950.) Mycoses chez les équidés d'Indochine. "Sporotrichose". **[Sporotrichosis of horses in Indo-China.]**—*Rev. vét. milit.* 183–189. **2858**

Sporotrichosis in horses in French Indo-China has often simulated epizootic lymphangitis. R. gives an account of the condition. Natural recovery occurs after a few months. Potassium iodide therapy is valuable.

—W. R. BETT.

ULRICH, J. A. & FITZPATRICK, T. B. (1951.) **Reversible inhibition of growth of** *Microsporum audouini* **with neopyrithiamine.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 346–349. [Authors' summary copied *verbatim.*] **2859**

The ability of neopyrithiamine to inhibit growth of *Microsporum audouini in vitro* in very low concentrations suggests its use in cases of tinea capitis caused by this fungus. The application of neopyrithiamine alone or in combination with other agents or vitamin antagonists now being studied may prove helpful in combating these infections.

STEEN, E. (1951.) **Rat bite fever. Report of a case with examination of** *Haverhillia moniliformis* [*Actinomyces muris-ratti*].—*Acta path. microbiol. scand.* **28.** 17–26. [In English.] **2860**

A three-month-old baby developed *Actinomyces muris-ratti* infection after being bitten on the tongue by a rat. This is the first known case in Norway. The properties of the strain are described.

BRUECK, J. W. & BUDDINGH, G. J. (1951.) **Propagation of pathogenic fungi in the yolk sac of embryonated eggs.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 258–261. [Abst. from authors' summary.] **2861**

The yolk sac of the developing chick embryo has proved to be highly suitable for the propagation of the following pathogenic fungi: *Actinomyces bovis, Nocardia asteroides, Nocardia intracellularis. Sporotrichum Schenkii, Histoplasma capsulatum, Cryptococcus neoformans* and *Coccidioides immitis.*

THJØTTA, T., RASCH, S. & URDAL, K. (1951.) **Preparation of fungous antigens for immunization and for serological reactions. A preliminary report.**—*Acta path. microbiol. scand.* **28.** 132–138. [In English. Abst. from authors' summary and discussion.] **2862**

After extraction of *Geotrichum* and *Candida* spp. a clear fluid is obtained, which can be used both as an immunizing agent and as a reagent for *in vitro* tests. If the extract is precipitated with alcohol and the precipitate redissolved in water a partly purified antigen consisting of polysaccharides and proteins is obtained. This partly purified antigen can be further purified by the purification of proteins. It contains complex carbohydrates of the fungus; it gives no protein reactions, but contains a small amount of nitrogen. The most purified antigen is a weak antigen in the animal body and should not be used for immunization; it seems to yield more specific reactions than the other fractions *in vitro.*

AKÇAY, Ş. & PAMUKÇU, A. M. (1950.) Yurdumuz sıgırlarında Leptospirosis olayları. **[Leptospirosis in cattle in Turkey.]**—*Türk Veteriner Hekimleri Dernegi Dergisi.* **20.** 319–332. [French summary.] **2863**

Three acute and fatal cases of leptospirosis are described in calves aged one year or less. There was general icterus, together with haemoglobinuria, haemorrhagic exudation in the peritoneal and pleural cavities, oedema of the lungs, and haemorrhages on the nasal mucosa. Sections of kidney, treated by Levaditi's method, revealed leptospira in the tubules, necrotic changes, infiltrations in the intertubular tissue and haemoglobin casts in the tubules. There was parenchymatous degeneration of the liver. The possibility of the transmission of bovine leptospirosis to man may be a new problem in public health in Turkey, and in this connexion the importance of rodent control in mentioned.

—H. ANTEPLIOGLU.

BERNARD, C. (1950.) Sur un syndrome ictéro-hémoglobinurique des bovins observé en Algérie. **[Icterohaemoglobinuria in cattle in Algeria.]**—*Arch. Inst. Pasteur Algér.* **28.** 335–338. **2864**

An outbreak of leptospira infection in cattle is reported. The disease affected animals irrespective of breed, age or sex with an insidious onset of loss of appetite, fever and anaemia; subsequently, with the appearance of marked jaundice, the temperature became sub-normal; constipation was the rule and the urine became darkly pigmented. The disease progressed to an acute and fatal termination by the fifth or sixth day.

P.M. findings were consistent with haemorrhagic icterus with haemoglobinuria. The kidneys were large, dark and congested.

It appeared likely that the disease was spread by rats, and the epidemic ceased when the rats were destroyed. Zothélone [N, N′-dimethylquinolylium methyl sulphate-6-urea] sulphonamides and formol were used unsuccessfully for the treatment of an unstated number of animals, but that large doses of penicillin cured one case.—G. FULTON ROBERTS.

DONATIEN, A., BERNARD, Cl. & GAYOT, G. (1950.) Existence de la leptospirose bovine en Algérie. **[Bovine leptospirosis in Algeria.]**—*Bull. Acad. vét. Fr.* **23.** 363–364. **2865**

The authors report the occurrence of bovine leptospirosis in Algeria. The diagnosis was based upon the clinical syndrome (fever, icterus, haemoglobinuria) pathology, and the presence of large numbers of leptospira in sections of the liver and kidney.—H. PLATT.

BORG-PETERSEN, C. (1950.) **Pathogenicity of *Leptospira bovis* for guinea-pigs and mice.**—*Acta path. microbiol. scand.* **27.** 726–735. [In English. Abst. from author's summary.] **2866**

Cultures of *Leptospira bovis in vitro* for 29–32 months were pathogenic for young guinea-pigs and young albino mice.

KOLOCHINE-ERBER, B. & COLLOMBIER, M. (1950.) Agglutination des leptospires, en particulier de "*L. pomona*", par les sérums de porcs. **[Agglutination of *Leptospira pomona* by the serum of pigs.]**—*Ann. Inst. Pasteur.* **79.** 370–376. **2867**

Agglutination tests carried out upon the sera of pigs from various parts of France have revealed the presence of antibodies against *L. pomona australis* C and other strains of *L. pomona.* In sera from two groups of pigs, agglutinins to *L. bataviae* were found. Two attendants working in the piggery from which serum samples from pigs serologically positive for *L. pomona* were obtained, were reported to be suffering from leptospirosis and to have positive agglutinin titres to *L. pomona.* The role of *L. pomona* in the causation of "swineherd's disease" is discussed.—H. PLATT.

ROOTS & VIETZE. (1950.) Ein Beitrag zur Technik und Bedeutung der Untersuchung von Hundeblutproben auf Leptospirosen.

[Examination of blood samples from dogs for leptospirosis.]—*Dtsch. tierärztl. Wschr.* **57.** 237–238. **2868**

An account of the technical details of the method of performing the agglutination test for the detection of antibodies to leptospira, as carried out in the authors' laboratory.

—H. PLATT.

WATKINS, E. D. (1951.) **Meningitis due to *Leptospira canicola*.** [Correspondence.]—*Brit. med. J.* Feb. 3rd. 227. **2869**

A case of meningitis which was diagnosed tentatively as abortive poliomyelitis cleared up within six weeks and was subsequently considered to be due to infection with *L. canicola*, contracted from the patient's dog. The diagnosis of leptospirosis was made on the basis of serological examination of the blood of the patient toward the end of the period of illness and shortly after discharge from hospital and by subsequent examination of the blood of the dog which was said to have had vague symptoms of lassitude and anorexia a few days before the patient developed her symptoms.

The first serological examination of the patient's blood gave almost equal titres to *L. icterohaemorrhagiae* and *L. canicola:* in the second test, 26 days later, the titre to the former organism had fallen (1 : 100) and that to the latter remained high (1 : 3,000). The titres in the recovered dog were 1 : 30 and 1 : 1,000 respectively.—E. G. WHITE.

BRUNNER, K. T. & MEYER, K. F. (1950.) **Immunization of hamsters and dogs against experimental leptospirosis.**—*J. Immunol.* **64.** 365–372. [Abst. from authors' conclusions.] **2870**

Antigen prepared from cultures of *Leptospira canicola* in Schüffner's medium by treatment with 0·1 per cent sterile alum solution, concentration by centrifugation and inactivation by shell freezing and lyophilization protected hamsters and puppies, but it did not protect against *L. icterohaemorrhagiae*. Antigens prepared by the same procedure with murine strains conferred protection on hamsters.

A prophylactic capable of immunizing dogs with certainty against the common leptospiral infections in the U.S.A. must contain the *L. canicola* and *L. icterohaemorrhagiae* antigen in relatively large doses. The post-inoculation agglutinin titre serves as a useful measure of the degree of protection conferred by the antigens.

POPP, L. (1950.) Eine Feldfieberepidemie bei Erbsenpflückern. Neue Erkenntnisse über die Feldfieberepidemiologie. [A *Leptospira grippo-typhosa* **epidemic among pea pickers.**]—*Z. Hyg. Infektkr.* **131.** 575–597. **2871**

Of about 10,000 people employed on harvesting of pea crops in the Brunswick district during July–August 1949, 300 became infected with *L. grippo-typhosa*. In one area the incidence was as high as 25% of the total number of pea-pickers employed. All the patients had actually handled either pea pods or haulms. Examination of field mice and field hamsters from areas where cases had occurred in man revelaed that up to 80% of these rodents were infected. The infection predominated in adult animals. There were inflammatory lesions in the kidneys of mice and acute or subacute glomerulo-nephritis in hamsters.—E. G.

LASKOWSKI, L., STANTON, M. F. & PINKERTON, H. (1951.) **Chemotherapeutic effectiveness of alloxan in murine bartonellosis.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 475–477. [Authors' conclusions copied *verbatim*.] **2872**

Alloxan in relatively low and presumably non-diabetogenic dosages was found to be effective in preventing the development of murine bartonellosis, which invariably follows splenectomy in untreated carrier rats. The activity of this agent probably depends on its reaction with SH groups.

JOHNS, A. T. (1951.) **Isolation of a bacterium, producing propionic acid, from the rumen of sheep.**—*J. gen. Microbiol.* **5.** 317–325. [Author's summary copied *verbatim*.] **2873**

A strictly anaerobic micrococcus which produces acetic acid, propionic acid, carbon dioxide and hydrogen by fermentation of lactate was isolated from the rumen of sheep. It failed to ferment sugars and was identified as *Veillonella gazogenes*. Its significance in ruminant digestion is uncertain, but a characteristic reaction of this organism, the decarboxylation of succinic acid to yield propionic acid and carbon dioxide, appears to be important in the rumen. This reaction was studied by the Warburg technique with washed suspensions of rumen bacteria.

PIRIE, N. W. (1949.) **Structure and activities of the bacterial surface.**—*Nature, Lond.* **163.** 897–898. **2874**

P. summarized discussions on the serological properties of bacteria, the synthesis of capsular polysaccharides, the properties of the osmotic barrier and on bacterial motility. [The subject has been dealt with in more detail in a book which has already been reviewed [see *V.B.* **21.** 269.]—L. G. DONALD.

See also absts. **2977** (animal diseases in Australia); **2980** (air-borne contamination); **3002** (*Helvella esculenta* poisoning in dogs); **3012** (intestinal flora of pigs and turkeys); **3015** (action of antibiotics on enterococci); **3017** (use of antibiotics against pathogenic fungi); **3056** (testing of milk for TB. and brucellosis); **3062–3063** (bacterial rotting in eggs); **3064** (staphylococcal food poisoning); **3102** (staphylococcal enterotoxin test); **3110** (report, New Zealand).

DISEASES CAUSED BY PROTOZOAN PARASITES

MACAULAY, J. W. & SHAW, G. D. (Undated.) **A report upon control of trypanosomiasis in livestock in Northern Rhodesia.**—*Bur. interafr. Tsetse.* B.P.I.T.T. publ. No. 133/0. pp. 7. **2875**

The authors give results of trials with phenanthridinium 897 and 1553 in regard to therapeutic dosage, the possible production of photosensitization and the development of drug-fastness.—JAS. G. O'SULLIVAN.

ROUBAUD, E. & BOURDIE, M. (1950.) Essais sur l'action curative et préventive de l'antrycide sur les trypanosomiases animales. **[Curative and prophylactic action of antrycide in animal trypanosomiasis.]**—*Bull. Soc. Path. exot.* **43.** 552–556. **2876**

An account of laboratory tests of the curative action of antrycide methylsulphate and the preventive action of antrycide chloride. The methylsulphate in doses of 2·5 mg. per kg. and upwards cured infections of *T. brucei*, *T. congolense* and *T. evansi* in mice and rats. There were some relapses among the mice. One goat, infected by 100 *Glossina caliginea* with a mixture of *T. cazalboui* (*T. vivax*) and *T. congolense*, was cured by a dose of 5 mg. per kg. and had not relapsed two months later.

The chloride in a dose of 5 mg. per kg. was used to protect rats and mice against subsequent infection with *T. evansi* or *T. equiperdum*. For the first 20 days these animals were completely resistant. When an infection was established in rats after the 20th day, the disease ran a very chronic course and one or two rats appeared to overcome the infection. Trypanosomes from rats carrying this chronic infection were fully virulent when inoculated into unprotected rats. The treatment merely delayed the death of two groups of mice that were inoculated 37 and 46 days respectively after treatment with antrycide chloride.—F. B. LEECH.

I. GUYAUX, R. (1950.) **Antrycide dimethyl sulphate in the control of cattle trypanosomiasis in the Belgian Congo.**—*Bur. interafr. Tsetse.* Publ. No. 129/T. pp. 4. **2877**

II. WERY, J. E. (1950.) **An experiment on the treatment of animal trypanosomiasis with antrycide sulphate at the Kisenyi Veterinary Research Laboratory.**—*Ibid.* No. 102/T. pp. 4. **2878**

I. Treatment consisted of subcutaneous injection of 0·5 g. per 75–100 kg.; 1 g. per 100–200 kg.; and 1·5 g. per 200–350 kg. of a 10% aqueous solution of antrycide sulphate. There was severe local swelling, lack of appetite, tendency to lie down, and sometimes diarrhoea. One animal died after an intravenous injection at a dose rate of 1 mg. per kg. The following results are reported from separate trials. (1) In 55 cattle infected by *Trypanosoma congolense* and 15 with *T. vivax*, *T. congolense* disappeared from the peripheral blood in seven hours and re-appeared after five months in 8% of cases; *T. vivax* disappeared in 24 hours and re-appeared after one and a half months in 6·7%. The general condition of the animals improved rapidly and the improvement was maintained during six months. The fall in lactation caused by infection improved after 48 hours. (2) In 32 animals, *T. congolense* disappeared after four hours, *T. vivax* after 12–48 hours, with three relapses. (3) Similar results were obtained in 22 artificially infected animals. (4) 60 Bororo cattle, relapsed or re-infected, or previously treated with dimidium bromide gave negative tests 84 days after treatment. However, 12 animals which had received dimidium bromide only one week previously became infected with *G. palpalis* and *G. fusea* during the same period. (5) In 100 grade cattle exposed to *G. palpalis* and *G. fusea*, there was 100% cure after one injection if the animals were protected from further exposure to infection. Otherwise re-infection occurred within 30–120 days.

It was concluded that antrycide was safe and highly effective, and the best drug available for the treatment of bovine trypanosomiasis.

II. This report is summarized in preceding abst.—N. DEAN.

POUL, J. (1950.) Sur la fréquence de la leishmaniose canine à Alger et sur la valeur diagnostique de la formolgélification. **[Incidence of leishmaniasis in dogs in Algeria and the value of the formol-gel test in diagnosis.]**—*Arch. Inst. Pasteur Algér.* **28.** 449–456. **2879**

In eight months, 25 dogs in Algiers were positive for leishmaniasis on microscopic examination, a percentage of 10·5. A positive formol-gel test was corroborated in 86·9% of cases, but where the test was negative 98·6% were proved free from infection on microscopic examination.

The interpretation of the formol-gel test is discussed. When a positive reaction is present in other canine conditions, *e.g.* filariasis, the leishmania are probably masked.

—JAS. G. O'SULLIVAN.

WALETZKY, E., CLARK, J. H. & MARSEN, H. W. (1950.) **New chemotherapeutic agents in enterohepatitis (blackhead) of turkeys.**—*Science.* **3.** 720–721. **2880**

Drugs (1) known to be useful in the control of caecal coccidiosis in chicks and (2) known to

be useful in the control of malaria, were tested against standardized enterohepatitis infections induced by rectal inoculation of freshly homogenized liver from turkeys infected with " blackhead ". " Enheptin P " (2-amino-5-nitropyrimidine) proved markedly effective if given as 0·1% of drug in the diet for 7–14 days starting not later than the third day after the rectal injection. Drug concentrations as low as 0·0375% prolonged survival time considerably.

After the usefulness of Enheptin P had been established the related 2-amino-5-nitrothiazole (" Enheptin T ") was found to be equally effective and it could be produced much more economically.

[Considerably more published information is now available about " Enheptin T " which is apparently the drug of choice.]

—S. Brian Kendall.

Lastra, I. & Coatney, G. R. (1950.) **Transmission of *Haemoproteus columbae* by blood inoculation and tissue transplants.**—*J. Nat. Malaria Soc.* **9.** 151–152. [Authors' summary copied *verbatim*.] **2881**

Haemoproteus columbae infections in pigeons were transmitted in four of six trials by the transfer of 10 ml. of blood from donor birds which had been inoculated with sporozoites four days previously. Single trials at 8, 12, 14 and 26 days were unsuccessful. Transplants of lung tissue were infective when taken from 14-, 20- or 26-day old prepatent infections, but were negative at 8, 12 and 14 days. Transplants of spleen, liver, heart and brain from the above pigeons were not infective.

Bogoroditsky, A. V. (1949.) **[Chemoprophylaxis of piroplasmosis with acaprin.]**—*Veterinariya, Moscow.* **26.** No. 4. p. 28. **2882**

Acaprin was given to six cattle with induced *Babesia bigemina* infection during the first half of the incubation period; no parasites developed. When given to nine animals either during the second half or before infection, all reacted with typical symptoms. Administered to 23 cattle infected simultaneously with *B. bigemina* and *B. argentina* infections, acaprin prevented or weakened the former but not the latter infection. A repeat dose of acaprin was found to be effective against *B. argentina* only. The inference is that the effect of acaprin in certain cases is to clear the blood completely of *B. bigemina* and prevent the formation of antibodies. The author injected 40–80 ml. blood from four of such " cleared " animals into each of six healthy ones, which failed to become infected.—F. A. A.

Malherbe, W. D. & Parkin, B. S. (1951.) **Atypical symptomatology in *Babesia canis* infection.**—*J. S. Afr. vet. med. Ass.* **22.** 25–36. [Abst. from authors' summary.] **2883**

The few references to atypical symptomatology in dogs infected with *B. canis* are reviewed. Cases that have occurred in the Onderstepoort small animal clinic are described.

Akçay, Ş., Pamukçu, M. & Baran, S. (1950.) Bir köpekte ilk Toxoplasmose observasyionu. **[First observation of toxoplasmosis in dogs (in Turkey).]**—*Türk Veteriner Hekimleri Dernegi Dergisi.* **20.** 245–254. [English summary.] **2884**

A report of one case. Autopsy revealed ulceration of the stomach, which may be important in facilitating entry of the parasite. The lungs contained necrotic tubercles, accompanied by fibroblastic increase in peribronchial and periarterial tissues. For diagnosis, sections of lung may be stained with haematein-eosin, v. Gieson or Weigert methods, and parasites of characteristic morphology are mostly found in histiocytes and in the alveolar and bronchial epithelium. Affected cells become necrotic and cystic. There is some interstitial nephritis. Toxoplasms in small numbers are seen in the glomeruli, indicating distribution of the parasite by the blood. Transmission of the disease could not be tried.—H. Kurtpinar.

Kass, E. & Steen, E. (1951.) **Aureomycin treatment of acute experimental toxoplasmosis in rabbits.**—*Acta path. microbiol. scand.* **28.** 165–168. [In English. Authors' summary copied *verbatim*.] **2885**

12 rabbits were inoculated intraperitoneally with *Toxoplasma gondii*. 6 were treated with aureomycin, the other 6 served as controls. 5 of those treated survived, but only one of the controls. Sera from the surviving animals gave positive complement fixation and dye test.

Kass, E. & Steen, E. (1951.) **Serological investigations of rabbits experimentally infected with *Toxoplasma gondii*.**—*Acta path. microbiol. scand.* **28.** 169–173. [In English. Abst. from authors' summary.] **2886**

Rabbits with acute toxoplasmosis produce specific antibodies against *Toxoplasma gondii*. Complement-fixing antibodies appear in the serum during the second week of infection and reach a level of 1 : 384 after four weeks. The majority of untreated rabbits die before the complement-fixation test becomes positive. The dye test is more sensitive, and measurable amounts of antibodies could be demonstrated by the 4th day.

See also absts. **2905** (eperythrozoonosis); **2928** (trypanosomiasis control); **2977** (animal diseases in Australia); **3007** and **3066** (trypanosomiasis); **3008** (*Babesia infection*); **3110** (report, New Zealand).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

MOOSBRUGGER, G. A. (1950.) L'incidence [*sic*] des produits chimiques présents dans les suspensions de virus aphteux sur l'activité de ce virus. **[Influence of chemical products present in suspensions on the activity of foot and mouth disease virus.]**—*Bull. Off. internat. Epiz.* **33.** 462–473. **2887**

The influence of impurities, the action of electrolytes and the properties of different strains of virus were studied. The optimum dilution of virus for such observations was 1 : 250. In distilled water the adsorption limit is clear, but with phosphate buffers a markedly wide zone was found where results were inconsistent. The same phenomenon was observed with sodium chloride but to a smaller degree. With an acid aluminium hydroxide, adsorption was greater than with distilled water. There was no parallel between the adsorption of virus and that of Congo red.

Both salts in solution and colloids can have an activating effect on the virus and increase its infectivity in variable proportions, sometimes enormously. Thus it is evident that the virulence of a virus can be assessed only in relation to the vehicle in which it is suspended. These results indicate the care that is necessary in adding any adjuvants to vaccines.—G. V. LAUGIER.

RÖHRER, H., MÖHLMANN, H. & PYL, G. (1950.) Erfahrungen bei der Herstellung und Anwendung des Riemser Adsorbatimpfstoffes gegen Maul- und Klauenseuche. **[Production and use of the Riems F. & M. disease adsorbate vaccine.]**—*Exp. Vet.-Med.* **1.** pp. 1–13. **2888**

This is a review of 12 years' work on the production of the Riems foot and mouth disease vaccine. To date experience in its use covers some 15 million bovine vaccinations. Most outbreaks in Europe respond to Type A (O Vallée) vaccine. With polyvalent vaccines it has not been found necessary to take into account Type B virus variants. Increased yields of virus have been obtained using pig-adapted virus. Improvement in the technique of virus production is described. Virus preservation is effected in metal containers at −40° C. Alternate freezing and thawing is found to have no deleterious effect for some time. Preparation of the vaccine is carried out in closed containers, filters are washed to recover usable virus and it is considered essential to carry out heat inactivation with agitation.

The value of vaccination barriers between countries during severe epidemics is discussed. It is held that immunity following an epidemic can last at least six years; some proof of this has been obtained and it is offered as an explanation for the periods which elapse between panzootics. Experimentally an immunity of 28 months' duration has been obtained with Riems vaccine and in the field an immunity lasting three years is claimed.

The economic, financial and technical aspects of vaccine control are discussed in detail. —G. V. LAUGIER.

HENDERSON, W. M. (1948.) **Some observations on the quantitative study of vesicular stomatitis virus.**—*J. comp. Path.* **58.** 172–178. **2889**

The method evolved for the titration of F. & M. disease virus in cattle [*V.B.* **20.** 78] is suitable for vesicular stomatitis virus in either cattle or horses. In titration of F. & M. disease virus of bovine origin it is essential to use cattle to obtain an accurate result, but for vesicular stomatitis virus g. pigs were found to be as sensitive as cattle for detection of the virus in serial dilutions of the two strains examined [Ind-C. & N.J.-M.). Seven-day chick embryos were less sensitive. With one strain a comparison was made in mice inoculated intracerebrally and they were found to be as sensitive as cattle or g. pigs.—H. H. SKINNER.

HANSON, R. P., RASMUSSEN, A. F., Jr., BRANDLY, C. A. & BROWN, J. W. (1950.) **Human infection with the virus of vesicular stomatitis.** —*J. Lab. clin. Med.* **36.** 754–758. [Authors' conclusion copied *verbatim*.] **2890**

Three cases of infection with the virus of vesicular stomatitis in human beings are described. Each presumably was exposed by contact with experimentally infected animals. In two instances a biphasic febrile course occurred. The disease was accompanied by fever, severe general malaise, and muscle pain. Mild stomatitis was noted in two of the three patients. One had suggestive evidence of pneumonitis during the height of the initial febrile period. Subsequently an X-ray of the chest was clear. Except for a somewhat prolonged period of fatigability in convalescence, recovery was prompt and uneventful. V.S.V. was not isolated but high neutralizing activity of the sera for V.S.V., New Jersey type, developed during the course of the disease in two individuals and was present to a similar degree after recovery in the third. This would support prior unverified observations that the virus of vesicular stomatitis is transmissible to man under naturally occurring conditions, and that infections of animals with this virus are of significance to public health.

FINZI, G. (1951.) Nuove vedute sulla patogenesi della rabbia—immunità di gruppo o para-immunità fra il virus della rabbia e il virus di Carrè. **[A group immunity between rabies and distemper.]**—*Profilassi.* **24.** 33–35. [English and French summaries.] **2891**

F. states that the injection of his rabies vaccine which is prepared from dog brain protects dogs not only against rabies but against the nervous form of distemper. The evidence on which this theory is founded rests on field observations. He postulates a group immunity. —M. C.

DONALDSON, E. & WALDRON, D. H. (1951.) **An outbreak of cowpox at Marsh Gibbon, Bucks.**—*Mon. Bull. Min. Hlth. publ. Hlth. Lab. Serv.* **10.** 40–42. **2892**

A brief note on the occurrence of cowpox in a herd in England.

It is stated that eight outbreaks have been recorded in the literature during the last 50 years. Three persons on the farm became infected.

BURNET, F. M. (1951.) **Some biological implications of studies on influenza virus. I. The process of infection by the virus. II. Reproduction and variation in influenza viruses. III. The ecological approach to the common virus disease of to-day.**—*Johns Hopk. Hosp. Bull.* **88.** 119–137, 137–157 & 157–180. **2893**

The Herter Lectures delivered at Johns Hopkins Hospital in October 1950. In the first, B. discussed the phenomenon of virus haemagglutination; the properties of the receptor destroying enzyme of the cholera vibrio (RDE); protection against experimental infection with RDE; the nature of the substrate of virus enzyme and RDE; the nature of the red cell surface; and the " indicator state " of influenza viruses. In the second he dealt with reproduction and variation in influenza viruses; the method of limit dilution passage; recombination of characters; and multiplication of influenza virus within the cell. In the final lecture he made an ecological approach to the common virus diseases of to-day and discussed the liberation of infective material into the environment, and the role of immunity in common virus infections. —W. R. BETT.

CATEIGNE, G. & FAUCONNIER, B. (1951.) Biologie—Isolement d'une souche de grippe, essai d'identification de cette souche. **[Isolation and identification of an influenza strain.]** —*C. R. Acad. Sci., Paris.* **232.** 444–445. **2894**

During an influenza epidemic, strain of influenza virus was isolated which had many of the characteristics of strain A^1. D48 isolated during the 1948–49 epidemic.—W. R. BETT.

HOYLE, L. (1950.) **The multiplication of influenza viruses in the fertile egg. A report to the Medical Research Council.**—*J. Hyg., Camb.* **48.** 277–297. **2895**

The influenza virus infective elementary body consists of an aggregate of soluble antigen and specific antigens enclosed in a lipoidal envelope. The life cycle is studied stage by stage. The detectable evidence of intracellular multiplication of the virus is the logarithmic increase in soluble antigen between two and four hours. This antigen is probably the fundamental multiplying nucleoprotein of the virus and is a self-reproducing macro-molecule. Later stages in the cycle depend on the nature and vigour of the attack on the cell wall. Infectivity appears to be acquired as a result of passage through the cell wall.—W. R. BETT.

LOOSLI, C. G., HULL, R. B., BERLIN, B. S. & ALEXANDER, E. R. (1951.) **The influence of ACTH on the course of experimental influenza Type A virus infection.**—*J. Lab. clin. Med.* **37.** 464–476. [Authors' conclusions copied *verbatim.*] **2896**

ACTH given in daily doses of 0·25, 0·5, 1·0, and 4·0 mg. exerted an unfavourable effect on the course of experimental air-borne influenza A infections in mice. When treatment was started twenty-four hours before virus inoculation it had no effect on (*a*) the growth of virus in the lungs, (*b*) the antibody response and (*c*) the pathologic process in the lungs. That the 4·0 mg. daily dose was adequate was indicated by an increase in the percentage of polymorphonuclear leucocytes, suppression of the eosinophils, and depletion of lipoid substance in the cortex of the adrenal gland in the treated animals. ACTH in 4·0 mg. daily doses did not alter the blood sugar values when compared to similar determinations in untreated mice.

HULL, R. B. & LOOSLI, C. G. (1951.) **Adrenocorticotrophic hormone [ACTH] in the treatment of experimental air-borne influenza virus type A infection in the ferret.**—*J. lab. clin. Med.* **37.** 603–614. [Authors' summary copied *verbatim.*] **2897**

ACTH in 6 mg. daily doses did not alter favourably the temperature responses and other clinical manifestations of experimental air-borne influenza A in the ferret. Nor did it alter the pathologic process or the growth of virus in the respiratory tract. Likewise, the antibody response as indicated by time of appearance and degree of rise during and following infection was

the same in the ACTH-treated and untreated animals.

On the basis of the study of the effect of ACTH on the course of experimental air-borne influenza in the mouse and ferret, there is no evidence that it has a place in the treatment of this disease in man.

SIEM, R. A., SMITH, B. C. & MCLIMANS, W. F. (1950.) **Oxygen uptake of embryonated eggs infected with Western equine encephalitis virus.**—*Science*. **112.** 505–506. **2898**

The authors reported the results of a study of the oxygen uptake of individual embryonated hen's eggs infected with Western equine encephalitis virus. Normal eggs and normal eggs inoculated with a chick embryo suspension were used as controls. No evidence was found that this virus stimulated the oxygen uptake during the course of the infection. At the terminal stage of infection at approximately 17 hours a marked drop in the oxygen consumption occurred. Similar findings have been recorded by the authors for Newcastle disease virus.

—D. LUKE.

CASALS, J., ANSLOW, R. O. & SELZER, G. (1951.) **Method for increasing the yield of complement-fixing antigens of certain neurotropic viruses, and the use of newborn mice for their production.**—*J. Lab. clin. Med.* **37.** 663–664. [Authors' summary copied *verbatim*.] **2899**

The use of newborn mice for the preparation of complement-fixing antigens for certain neurotropic viruses shows that highly titered antigens can be obtained with Western equine and with Japanese B encephalitis viruses, and also that the sediment can be re-extracted with physiologic saline solution to yield an added supply of antigen.

LAKTIONOV, A. (1950.) **[Causes of equine infectious anaemia.]**—*Veterinariya, Moscow*. **27.** No. 2. pp. 8–14. **2900**

A philosophical discussion.—F. A. A.

SEIBEL, L. (1950.) Zur Epidemiologie und Bekämpfung der ansteckenden Blutarmut des Pferdes. **[Epidemiology and control of equine infectious anaemia.]**—*Tierärztl. Umsch.* **5.** 278–282. **2901**

A hitherto unpublished report (1938) from the Riems Institute, of investigations made into the epidemiology of the disease, followed by a detailed account of subsequent observations, with emphasis on the importance of the virus carrier. It is too early yet to judge whether modern insecticides will be able to play an important part in the control of the disease.

—H. H. SKINNER.

ANON. (1951. **Rinderpest chick embryo vaccine research in Japan.**—*Vet. Med.* **46.** p. xxix. **2902**

A note stating that, under the control of the Veterinary Service, Supreme Commander for Allied Powers, in Japan, rinderpest virus had been passed through the 130th chorio-allantoic membrane passage in fowl eggs and that, separately, virus had passed the 53rd yolk sac passage. The chorio-allantoic membrane passaged virus appeared to be gradually attentuated, the interval between inoculation and death of inoculated calves gradually becoming longer and the syndrome becoming lessened in severity. The yolk sac strain had previously been passaged in the chorio-allantoic membrane; at the 88th passage by that route it was passed to a bovine animal and then back to egg through the chorio-allantoic membrane; from that passage it was passed through the yolk sac. Up to the 53rd yolk sac passage the virus had died out three times, but had been brought back each time by one alternate passage in a bovine animal.

Japanese calves inoculated with the virus at the 30–35th passages died of pneumonia complications, but those inoculated at the 40–45th passages all survived. Holstein calves inoculated at every 5th passage between the 30–50th passages all recovered. The virus was still too virulent for use as a field vaccine but the virulence appeared to be lower than that of lapinized virus. It was anticipated that another 25–50 more yolk sac passages would be necessary before the vaccine was suitable for use on cattle.

BARWELL, C. F. & BISHOP, L. W. J. (1951.) **Virus of enzootic abortion in ewes: antigenic relationship with viruses of the psittacosis group.** [Correspondence.] *Nature, Lond.* **167.** 998. **2903**

The causal agent of enzootic abortion of sheep [Stamp *et al. V.B.* **21.** 168] was cultivated on the chick embryo and rich yields of elementary bodies were obtained in the yolk sac.

Using the complement-fixation test, heated suspensions of elementary bodies were tested against human serum from cases of psittacosis and of lymphogranuloma venereum; full fixation was obtained with both sera. Samples of serum from three infected sheep were found to fix complement with heated preparations of the psittacosis and the homologous virus. The virus of enzootic abortion of ewes should be classified in the psittacosis-lymphogranuloma venereum group.—M. C.

COMINOTTI, L. & MANTOVANI, G. (1950.) Contributo alla profilassi della peste suina.

Esperienze di immunizzazione attiva. **[Prophylaxis of swine fever. Active immunization.]** —*Clin. vet., Milano.* **73.** 129–137. **2904**

A total of 103 pigs, divided into three groups, were injected with formolized vaccine supplied by Michalka.

In the first group, where the second injection was given 24 hours after the first, the pigs had a febrile reaction, which had worn off by the 48th hour.

The two remaining groups, which received the second injection after a fortnight's interval, had no reaction whatever.

When the pigs of the third group were introduced into an infected sty, a fortnight after the second injection, none contracted the disease, while 11 unvaccinated piglets introduced at the same time developed swine fever within 7–8 days.

Similar results were obtained with formolized vaccine prepared by the authors and used on 241 pigs. Four months later all these animals were still healthy.

The fact that none of 50 unvaccinated pigs, newly introduced into this last series, contracted the disease, is said to show that no lasting elimination of the virus follows the use of this vaccine.—G. P. MARSHALL.

FOOTE, L. E., BROCK, W. E. & GALLAHER, B. (1951.) **Ictero-anemia, eperythrozoonosis, or anaplasmosis-like disease of swine proved to be caused by a filtrable virus.**—*N. Amer. Vet.* **32.** 17–23. **2905**

Evidence based on filtration and transmission experiments using both splenectomized and normal pigs is presented which the authors consider to indicate that the organisms described by Splitter, E. J. and Williamson, R. L. [*V.B.* **21.** 431] as *Eperythrozoon suis* are only artefacts, and that the anaplasmosis-like disease is actually caused by a virus. The inoculation period in splenectomized pigs is from three to ten days and it is suggested that transmission may be by biting arthropods. [It is not possible from this article to estimate the comparative porosity of the filters used, nor is there any indication that the filtration experiments were controlled bacteriologically.]—M. C.

PAY, T. W. F. (1950.) **Infectious canine hepatitis (*Hepatitis contagiosa canis* [Rubarth]).**—*Vet. Rec.* **62.** 551–555. Discussion: pp. 555–558. **2906**

Thirty cases of infectious canine hepatitis were diagnosed among a total of 353 canine autopsies performed at the Royal Veterinary College, London. This series did not contain many dogs that had died of distemper or " hard pad" disease.

The lesions commonly observed are described.

Histologically the liver lesions varied from merely mild regressive changes to a massive necrosis. In general there was marked dilatation of the sinusoids, often with haemorrhage, in the central lobular zone. The hepatic cells were usually partly or completely necrotic in the central lobular region, with granular dissolution of the cytoplasm and a marked staining affinity for eosin. Large, usually basophilic, intranuclear inclusion bodies were found in hepatic epithelial cells of the sinusoids, and in the Kupffer cells. Intranuclear inclusion bodies resembling those found in the liver were seen in the spleen. Only mild degenerative changes were seen in the kidney parenchyma, but inclusion bodies were sometimes found in the capillary endothelium of the renal glomeruli. In the blood vessels of the brain and meninges there was often a marked swelling of the endothelial cells, with accompanying necrobiotic nuclear changes. Inclusion bodies were found in these swollen vascular endothelial cells, but never in any type of nervous tissue cell. No true encephalitis or evidence of damage to the nervous tissue elements, other than that caused by vascular damage such as oedema and subpial haemorrhage, was ever observed.

The disease presents several remarkable epidemiological features. A typical history is for one or two animals of a litter to sicken suddenly and die, a few others may have symptoms for two or three days and recover, and the remainder of the litter remain in normal health. —ALASTAIR N. WORDEN.

PARRY, H. B. (1950.) **Viral hepatitis of dogs (Rubarth's disease). I. Clinical and pathological observations on a spontaneous epidemic.** —*Vet. Rec.* **62.** 559–565. **2907**

An account of an outbreak of an acute febrile disease among 34 young dogs and four older animals. Clinical symptoms occurred in 22 of the animals and there were four deaths. On the day prior to the outbreak there was a curious turpentine-like odour about the kennels, which the head kennelman reported as a " distemper smell ", *i.e.*, one that he had noticed frequently in outbreaks of " distemper ". The following day several dogs had hysterical running-barking seizures and one collapsed and died. Other animals had temperatures of up to 106° F., but were normal otherwise, and symptoms were variable throughout a period of ten days, by which time all survivors were outwardly normal. The other three deaths occurred during the first four days.

Typical intranuclear inclusion bodies were demonstrated in the hepatic cells of the four fatal cases, in which there was a marked hepatitis and evidence of a marked disturbance of vascular permeability. Attempts to transmit the disease to ferrets and dogs were unsuccessful. No significant bacteriological findings were made, and agglutination tests against *Leptospira icterohaemorrhagiae* and *L. canicola* were negative. Convalescent sera from recovered dogs are stated to have shown an antigen-antibody reaction with liver antigen from fatal cases and also with antigen supplied by RUBARTH.

—ALASTAIR N. WORDEN.

NARDELLI, L. (1950.) L'epatite contagiosa del cane in Italia. **[Infectious hepatitis in dogs in Italy.]**—*Zooprofilassi.* **5.** 529–544. (Abst. from English summary.] **2908**

An account of canine infectious hepatitis in dogs in Italy.

LÉPINE, P. & SAUTTER, V. (1945.) Etudes sur la pneumopathie des cobayes. I. La maladie des cobayes. **[The virus pneumonia of guinea pigs.]**—*Ann. Inst. Pasteur.* **71.** 102–120. **2909**

The organs of a horse suspected by the attending veterinarian to have died from enteritis were sent to the Pasteur Institute for study. A suspension of these organs injected into eight g. pigs of the Institute stock activated a latent infection of the g. pigs, and five died. The suspension did not produce disease when injected into g. pigs of clean stock from another source.

The virus recovered from the g. pigs which had died became fixed after six passages through g. pigs and a 1 : 50 suspension of infected organs or blood was then injected either subcutaneously or intracerebrally into 40 g. pigs. There was rapid emaciation from the third day and fever between 40° and 41° C. from the fifth day; 20 g. pigs inoculated intracerebrally died after an average interval of 9·7 days and 20 inoculated subcutaneously in 9·9 days.

Histopathological findings confirmed a virus pneumonia; mice, rats, rabbits, a cat and a ferret were unaffected by inoculation of the virus.—E. V. L.

BLANC, G. & BRUNEAU, J. (1948.) Comportement du virus de la pneumopathie du cobaye chez quelques arthropodes piqueurs. **[Behaviour of the virus of a respiratory disease of g. pigs in biting arthropods.]**—*C.R. Acad. Sci., Paris.* **227.** 375–376. **2910**

Experimental infection of g. pigs with the g. pig pneumonia virus was always fatal. [See preceding abst.] The authors studied the role of biting arthropods as reservoirs for the virus.

After feeding on infected g. pigs, numbers of the arthropods were taken at varying intervals, ground up and inoculated into fresh g. pigs. *Rhipicephalus sanguineus* became infected, but the virus did not survive more than ten days. It was not recovered after the moult from larva to nymph or from nymph to adult. In *Hyalomma* [species not stated], the virus was absent in exposed larvae and on the third and tenth days after the meal. In *Ornithodoros erraticus*, the virus persisted for 20 days in the intestine and disappeared before another meal was taken. In *Xenopsylla cheopis*, the virus was present 24 hours later but was absent after four days.

It was concluded that the virus survives only a short time and does not multiply in these arthropods.—K. B. SINCLAIR.

RICKARD, E. R. (1951.) **Postinfection murine typhus antibodies in the sera of rodents.**—*Amer. J. Hyg.* **53.** 207–216. [Author's summary copied *verbatim*.] **2911**

Large numbers of non-immune roof, cotton and wood rats and smaller numbers of other small mammals indigenous to Florida were inoculated with the Wilmington strain of murine typhus rickettsiae. Serum specimens obtained from these animals at periods of from 4 days to more than 1 year after inoculation were examined by complement fixation for murine typhus. Complement-fixing antibodies rose rapidly in all species. With passage of time loss of complement-fixing antibodies was more apparent in roof than in cotton rat sera. The rickettsial agglutination test was compared to the complement-fixation and Weil-Felix tests as an indicator of past typhus infection in rodents. Rickettsial agglutination was found to be less accurate for this purpose than complement fixation but more accurate than the Weil-Felix test.

DE BURGH, P. M., HOYLE, A. R. & METCALF, D. J. (1950.) **Nucleoproteins in virus infection.**—*Aust. J. Sci.* **13.** 82. **2912**

The relationship of ectromelia virus to the cell was investigated by measuring the relative specific activity of nucleoprotein phosphorus of various cellular components in normal and infected livers. Five hours after injection of P^{32} the livers were removed and fractionated by differential centrifugation. The activity of total nucleoprotein phosphorus was the same in normal and infected livers. The virus appears to act directly on the cytoplasm and not by way of the nucleus and does not have a uniform effect on all cytoplasmic particles. In infected liver there was an increased activity in the mitochondria and microsomes.—D. F. STEWART.

Schäfer, W. (1950.) Vergleichende Untersuchungen über das atypische und klassische Geflügelpestvirus. **[Comparative studies of the virus of fowl plague and the virus of Newcastle disease.]**—*Tierärztl. Umsch.* **5.** 241–245. **2913**

The classical and the atypical viruses of fowl plague differ in size and shape, as observed under the electron microscope, and in their sensitivity to a low pH. S. considers that apparent immunological relations are the result of non-specific reactions and that the two viruses should be regarded as fundamentally different. He considers that the virus of Newcastle disease is identical with the atypical fowl plague virus. The relationship of the virus N, described by Dinter in 1944, is as yet unknown.—A. M.-H.

Zuydam, D. M. (1950.) Pseudovogelpest (Newcastle disease) bij in Nederland geïmporteerde fazanten. **[Newcastle disease in imported pheasants in the Netherlands.]**—*Tijdschr. Diergeneesk.* **75.** 158–165. [English, French and German summaries. English summary modified.] **2914**

Newcastle disease was diagnosed in pheasants imported into the Netherlands. The virus was cultivated in fertile eggs, and identified by the haemagglutination and the haemagglutination inhibition test, susceptibility to pH changes and animal experiments.

A number of samples of fowl serum from all parts of the Netherlands were examined for Newcastle disease antibodies with a negative result.

Reagan, R. L., Smith, E. J. & Brueckner, A. L. (1950.) **Studies of Newcastle disease virus (NDV) propagated in the cave bat (*Myotus lucifugus*).**—*Proc. Soc. exp. Biol., N.Y.* **75.** 691–692. [Authors' summary copied *verbatim.*] **2915**

The cave bat, *Myotus lucifugus*, is susceptible by intracerebral inoculation to the 6 egg-adapted NDV strains: California, Colorado, Connecticut, Delaware, Kentucky, and Minnesota, used in this study. The California strain was carried 10 passages in the bat by intracerebral inoculation. Serial passage in bats was not attempted with any of the other 5 strains.

Granoff, A., Liu, O. C. & Henle, W. (1950.) **A small hemagglutinating component in preparations of Newcastle disease virus.**—*Proc. Soc. exp. Biol., N.Y.* **75.** 684–691. [Authors' summary copied *verbatim.*] **2916**

Disproportionate sedimentation in the high speed centrifuge of haemagglutinins and infective principle of Newcastle disease virus in suspensions of infected allantoic membranes has been reported. This suggests the presence in such preparations of two hemagglutinating particles of different sizes; one of these appears to be identical with the infectious principle, the other, smaller one, according to all indications is non-infectious. The specificity of this smaller hemagglutinin has been established by hemagglutination-inhibition tests. The medium in which the virus is suspended apparently does not affect the sedimentation of hemagglutinating capacity. Experiments employing Seitz filtration have been unrevealing.

Johnson, E. P. & Gross, W. B. (1951.) **Vaccination against pneumoencephalitis (Newcastle disease) by atomization or nebulization with the B_1 virus.**—*Vet. Med.* **46.** 55–59. **2917**

Groups of chicks 24–48 hours old were exposed to B_1 (low virulent) virus either as a spray or in the form of a fine mist. A satisfactory immunity was established. The possibilities of this method for large-scale vaccination are discussed.—D. Luke.

Duncan, P. R., Thomas, A. E. & Tobin, J. O'H. (1951.) **Lymphocytic choriomeningitis. Review of ten cases.**—*Lancet.* **260.** 956–959. **2918**

An account of cases of the disease in human beings. Mice trapped in the houses inhabited by persons with the disease were found to be carrying the virus of lymphocytic choriomeningitis.

Davoli, R. & Signorini, L. F. (1951.) Una nota di tecnia sulla fissazione del complemento con *Rickettsia burneti* e sieri di ovini. **[Complement-fixation test for Q fever in sheep.]**—*Bol. Ist. sieroter. Milan.* **30.** 93–94. [English summary.] **2919**

The authors describe a procedure for the complement-fixation test for Q fever in sheep.

Payzin, S. (1950.) Q Hummasına karsı asi ve Müessiriyet deneyleri. **[Vaccination experiments against Q fever.]**—*Türk Ijiyen ve tecrübî Biyoloji Dergisi.* **10.** 16–21. [English summary.] **2920**

Two types of vaccine were prepared, a crude and a purified one, from yolk sacs of eggs inoculated four days previously with *R. burneti*. The eggs contained 7-day-old embryos at the time of seeding. For the crude vaccine, 10 ml. saline containing 0·1% formalin was used for each yolk sac; after thorough mixing the material was left for six days on ice, the lipoid layer was discarded, and more saline was added to give various dilutions. For the purified vaccine, the crude formolized material was extracted with ether, the lipoid fraction discarded, the watery

remnant centrifuged to remove coarse particles and then recentrifuged to sediment the rickettsia. The deposit was then resuspended and variously diluted for test. After inoculating g. pigs with these vaccines immunity was challenged with the Morocco strain of *R. burneti* 10 m.l.d. intraperitoneally. It appeared that the purified vaccine was rather more efficient. Such vaccines may be useful for protecting persons exposed to risk of Q fever.—F. CHIZMAN.

See also absts. **2957–2958** (chicken tumour virus); **2977** (animal diseases in Australia); **2979** (livestock diseases in Japan); **2984** (swine fever); **2988** (distemper).

IMMUNITY

HAYES, S. P., DOUGHERTY, T. F. & GERHARDT, L. P. (1951.) **A method for the demonstration of tissue antibody.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 460–462. [Authors' summary copied *verbatim.*] **2921**

A direct slide agglutination technic is described for determining the presence of agglutinating antibody in air-dried films of tissues and cells. This method has proved to be of value in correlating the appearance of antibody with cytological changes occurring at the site of antibody production.

BRION, A. (1950.) Sur le passage à son muleton des anticorps anti-mulet de la jument tachée de jaunisse. **[The transfer of antibody from mares to mule foals.]**—*C.R. Soc. Biol. Paris.* **144.** 120–121. **2922**

B. presents two further cases of haemolytic disease in mule foals showing that the antibody which is concentrated in the colostrum is thereby transferred to the foal. It is recommended that the mare should not suckle the foal until the antibody titre of the milk is reduced to 1 : 16 or lower.—G. FULTON ROBERTS.

GRIFFITTS, J. J. & NOCK, W. S. (1951.) **A note on persistence of antibody passively transferred from mother to infant.**—*Amer. J. clin. Path.* **21.** 260–263. [Authors' summary copied *verbatim.*] **2923**

Passively-transferred antibody derived from the mother was demonstrable in an infant for at least 118 days. This finding agrees with the generalization that passive immunity to certain infectious diseases may last for three to six months in infants. The persistence of Rh antibody must be borne in mind in the treatment of erythroblastosis fetalis.

MOSS, J. N., BEILER, J. M. & MARTIN, G. J. (1950.) **Inhibition of anaphylaxis in guinea pigs by d-catechin.**—*Science.* **112.** 16. **2924**

Experiments with 14 sensitized g. pigs showed that the administration of the antihistaminic d-catechin at the rate of 2 mg. daily for 19 days protected them from anaphylactic shock when horse serum was used to produce it. The drug, however, did not protect g. pigs from shock when histamine diphosphate was used as the shocking agent. This suggests that the drug inhibits histidine decarboxylase since it is the formation of histamine in the presence of this enzyme which is mainly responsible for shock when foreign proteins are injected.

—J. A. NICHOLSON.

See also absts. **2826** (fermented TB. antigen); **2827** (tuberculin); **2828** (TB. vaccines); **2829** (cortisone and TB. vaccination); **2830** (haemagglutination of tuberculin-sensitized sheep cells); **2835** (mallein); **2843** (non-pullorum agglutination); **2848** (*Brucella* antigen); **2850–2851** (Strain 19); **2862** (fungous antigens); **2867** (*Leptospira* agglutination); **2870** (immunization against leptospirosis); **2886** (serology in experimental toxoplasmosis); **2887–2888** (F. & M. disease); **2891** (rabies and distemper group immunity); **2899** (production of neurotropic virus antigens); **2902** (rinderpest vaccine); **2904** (swine fever); **2911** (murine typhus antibodies in rodents' serum); **2916–2917** (Newcastle disease); **2919–2920** (Q fever); **2942** (lungworms causing allergic heart lesions in sheep); **3038** (rat-serum lipase).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

POSSOMPÈS, B. (1950.) Rôle du cerveau au cours de la métamorphose de *Calliphora erythrocephala* Meig. **[The role of the brain in the metamorphosis of *C. erythrocephala.*]**—*C.R. Acad. Sci., Paris.* **231.** 594–596. **2925**

Implant experiments with third stage larvae were carried out and it was concluded that a stimulus originating in the brain activated the process of metamorphosis. Further work is proceeding to determine the mode of action of the neuro-secretory cells of the larval brain.

—JAS. G. O'SULLIVAN.

ROBERTS, F. H. S. & MOULE, G. R. (1951.) **A preliminary report on the value of DDT and BHC for the control of body-strike in sheep.**—*Aust. vet. J.* **27.** 35–39. [Abst. from authors' summary.] **2926**

Promising results were obtained in field trials from 1·0% pp′ D.D.T. and 0·05% gamma BHC applied by hand as a spray under 100–150 lb. pressure to the back of the sheep from the ears to the tail, with particular attention to the natural drainage lines.

DU TOIT, R. & KLUGE, E. B. (1949.) **The attempted eradication of tsetse flies in the Union of South Africa.**—*Bur. interafr. Tsetse.* [I.S.C.T.R. publ. No. 17.] pp. 20. **2927**

An account of the work done in Zululand which has been reported elsewhere.

—K. B. SINCLAIR.

LEWIS, E. A. (1950.) **Game, tsetse and trypanosomiasis control.**—*Bur. interafr. Tsetse.* [B.P.I.T.T. publ. No. 134.] pp. 7. **2928**

The possible effects of game extermination on the different species of *Glossina* are considered. The habitats of, and the distances covered by, the flies are discussed.

—JAS. G. O'SULLIVAN.

BORCHERT, A. (1950.) Neue Wege der Räudebekämpfung. **[The treatment of mange.]**—*Mh. Vet.-med.* **5.** 127–128. **2929**

B. stated that demodectic mange in dogs was treated by the oral and subcutaneous administration of benzene hexachloride at a dosage rate of 20–80 mg. per kg. body weight of the pure γ-isomer in poppy seed oil with promising results.—ROY MACK.

MCDUFFIE, W. C., EDDY, G. W., CLARK, J. C. & HUSMAN, C. N. (1950.) **Field studies with insecticides to control the lone star tick in Texas.**—*J. econ. Ent.* **43.** 520–527. **2930**

Tests with sprays and dusts containing D.D.T., chlordane, toxaphene, technical benzene hexachloride and nicotine sulphate against *Amblyomma americanum* under field conditions in Texas are described. Aerial spraying was found to be ineffective because the insecticide did not reach the ground or penetrate tick-infested litter. In a large-scale test, 43 lb. of 10% D.D.T. dust per acre gave 97% reduction of tick population within six weeks. The area contained only 30% of the number of ticks in a check area, after 14 months.—C. M. S.

COLLINS, D. L. & NARDY, R. V. (1950.) **Effects of DDT spray residues on larvae of the tick** *Dermacentor variabilis*, **Say.**—*J. econ. Ent.* **43.** 861–863. **2931**

Residues left after spraying with D.D.T. applied as a 5% emulsion at the rate of 5 lb. or more per acre gave a good kill of *Dermacentor variabilis* larvae for five weeks. Lesser dosages had no effect after the second week.—C. M. S.

MICKS, D. W. (1951.) **The laboratory rearing of the common fowl tick,** *Argas persicus* (Oken). —*J. Parasit.* **37.** 102–105. [Author's summary copied *verbatim.*] **2932**

A method of rearing *Argas persicus* in the laboratory is described, whereby a relatively large number of ticks may be reared in a small space with a minimum of attention. This method permits feeding of the ticks in the daytime as well as night.

Detailed observations on the life cycle of the fowl tick under laboratory conditions are reported.

See also absts. **2910** (ticks); **3024** (contact insecticides); **3025** (dipping tanks).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

TANG, C. C. (1950.) **Studies on the life history of** *Eurytrema pancreaticum* **Janson, 1889.**—*J. Parasit.* **36.** 559–573. [Author's summary copied *verbatim.*] **2933**

The development in the intermediate host was worked out in experimental infections for *Eurytrema pancreaticum* Janson, 1889, a dicrocoeliid trematode which is common in the pancreatic and biliary passages of cattle and other herbivorous mammals in the Orient. The intermediate hosts that were demonstrated by the experimental infections are two land snails of the family Fruiticoidolidae, *Bradybaena similaris* Férussac and *Cathaica ravida sieboldtiana* Pfeiffer, which were also found to be the natural intermediate hosts in Fukien Province, China.

The structure of the egg and miracidium of this species was found to be very similar to these stages described for several other Dicrocoeliinae. The eggs hatch only after being eaten by the snails, and the mother sporocyst develops in the tissue or the follicle of the digestive gland, closely surrounded by the host's tissue. The mother sporocyst becomes a large, rather irregular lobed structure. In its early development there is an extensive multiplication of germinal cells like that described for *Dicrocoelium dendriticum* and certain plagiorchiids. The daughter sporocysts develop, within the matrix of the mother, into large complicated sacs with a heavy outer wall which escape from the snails. The cercaria has a short stumpy tail and the structure of its body is very similar to that of the other dicroeliid cercariae that have been described. Since attempts to infect goats with the free daughter sporocysts were not successful it is not known whether or not a second intermediate host is required. While the structure of the larval stages of the Dicrocoeliinae show that they are closely related to the Plagiorchiidae, their life

cycles show a number of striking differences from those of the latter group which are evidently modifications for transmission by land snails.

I. Guilhon, J. & Rioux, J. (1948.) Action des sels organiques d'antimoine sur *Dicrocoelium lanceolatum*. **[Effect of antimony compounds on *Dicrocoelium lanceolatum*.]**—*Bull. Acad. vét. Fr.* **21.** 343–345. **2934**

II. Guilhon, J. & Rioux, J. (1948.) Recherches sur la toxicité des sels organiques d'antimoine pour *Dicrocoelium lanceolatum*. **[Toxicity of antimony compounds for *Dicrocoelium lanceolatum*.]** *Ibid.* 381–385. **2935**

I. Of the organic compounds of antimony recommended against helminths only fouadin a trivalent antimony derivative had been used against *Dicrocoelium lanceolatum*. The authors in tests on eight sheep with slight fluke infestation used pentavalent antimony derivatives, *p*-aminophenylstibinate of methyl glucamine or the antimoniate of N-methyl-glucamine. Neither of these substances proved effective against the fluke even in doses larger than those used for fouadin.

II. Further tests were then made with trivalent antimony compounds:—sodium antimonyl tartrate, antimoniothiomalate of lithium and fouadin. The first two substances were without effect in doses other than those fatal to the host.

The authors repeated Sprehn's work with fouadin and concluded that the flukes were not killed because eggs reappeared in the faeces two months after their initial disappearance. Of the drugs used only fouadin in therapeutic doses was effective against *Dicrocoelium*.

—Jas. G. O'Sullivan.

Vartiainen, I. & Bastman-Heiskanen, L. (1947.) **On the staining of diphyllobothrium ova.**—*Ann. Med. intern. Fenniae.* **36.** 729–739. [In English.] **2936**

Eggs of *Diphyllobothrium latum* were taken from various parts of 17 worms and from faeces of carriers and stained in 1% eosin. The stainability of protoplasm increases when the cell dies. The percentage of stained ova increased towards the terminal proglottides but more oncospheres hatched from the eggs taken from segments nearer the head. Results from different worms varied, possibly because some worms were younger or incomplete. —C.M.S.

Fontanelli, E. (1951.) Le piu importanti affezioni parassitarie degli ovini nel Lazio. **[Parasites of sheep in the Rome district.]**—*Zooprofilassi.* **6.** 28–39. [Abst. from English summary.] **2937**

The parasites of the stomach and intestine [*Haemonchus contortus*, *Chabertia ovis* and tapeworms) were the causes of the most damage in sheep. Strongyles were controlled with a copper sulphate-arsenic mixture and kamala was the most powerful remedy against tapeworms.

Gordon, H. McL. (1949.) **Epidemiology and the efficient parasite. (With special reference to the nematode parasites of domestic animals.)** [Presidential address.]—*Rep. Aust. N.Z. Ass. Adv. Sci.* **27.** 131–140. **2938**

G. drew a parallel between the clearing up of an epidemic and the cure of an individual animal, considered the resolution of an epidemic with its waxings and wanings and complex interrelationships with animal behaviour, climatic conditions and the application of various control measures en masse, and emphasized the importance of preventive herd treatment as opposed to the clinical treatment of individual animals.

He discussed the epidemiology of helminth diseases in relation to the " efficient " parasite, giving some definitions of parasitism from the points of view of an epidemiologist (Swellengrabel), a zoologist (Van Benedin), a protagonist of preventive veterinary medicine (Maurice Hall), an ecologist (Elton) and a parasitologist (E. L. Taylor).

He discussed the behaviour of parasites in relation to " biological efficiency " and pathogenicity. Pathogenicity cannot necessarily be regarded as a manifestation of maladjustment between host and parasite; it is merely incidental to the type of biological relation concerned, in much the same way as phenomena of resistance and immunity. The fact that pathogenicity and immunity are incidental to the host-parasite relationship emphasizes the significance of the sporadic occurrence of outbreaks and the erratic and unpredictable phenomena associated with immunity.

He made some comments on the " self-cure " phenomenon and speculations on its nature.

In a comparison of the biotic potentials of *Haemonchus contortus*, *Trichostrongylus* spp. and *Oesophagostomum columbianum*, use was made as criteria of host range, resistance of the free-living stages and egg output from a medium infestation.

He discussed the special features of the epidemiology of helminthiasis and commented on such factors as climate, animal behaviour, pasture and population dynamics, and applied

the logistic curve of population growth to helminthiasis.

He discussed epidemiological cycles of helminthiasis in relation to seasonal and climatic conditions, nutrition, aging of the host, animal husbandry and other factors. He dealt with the life cycle in the two stages, parasitic and free-living and two phases, contamination and infection, for purposes of appreciating the potentialities of the situation.

He discussed efficiency and epidemiology and questioned whether the " efficient parasite " is safely left alone or is more easily controlled. He suggested that the phenomena of immunity, resistance, " self-cure " and other manifestations of apparent " incompatibilties " between host and parasite may have arisen only in the course of domestication and that basic information on the immunity aspect of host-parasite relationship should be sought in wild animals, or in domestic animals exposed only to light infestations.

MESSERLI, W. (1950.) Weitere Untersuchungen über Magendarm-Parasiten des Rindes und des Schweines. **[Intestinal parasites of cattle and pigs.]**—*Schweiz. Arch. Tierheilk.* **92.** 601–629. [English, French, German and Italian summaries.] **2939**

A general account of some clinical observations.—M. L. CLARKE.

GALLIARD, H. (1950.) Recherches sur l'infestation expérimentale à *Strongyloides stercoralis* au Tonkin. [*Strongyloides stercoralis* **infection in dogs.**]—*Ann. Parasit. hum. Comp.* **25.** 441–473. **2940**

The naturally occurring condition is very rare in China. Three strains were recovered, two of which in faecal culture produced only free-living types while the other was predominantly parasitic. Infestation of the dog with the human strain was of short duration and the canine parasite should be regarded as a separate variety. Figures for survival times of the non-parasitic phases are given and G. discusses the relative merits of inoculation routes.

Survival times of experimental dogs with varying doses are given and it was shown that the infesting power of a strain remained constant even although passaged up to 88 times.

—JAS. G. O'SULLIVAN.

ROTH, H. (1950.) Nouvelles expériences sur la trichinose avec considérations spéciales sur son existence dans les régions arctiques. **[Trichinosis in the Arctic.]**—*Bull. Off. internat. Epiz.* **34.** 197–220. **2941**

After a series of outbreaks in 1947, the Greenland government instituted a large-scale examination of terrestrial and aquatic mammals for evidence of trichinosis. *Trichinella* larvae were found in 66·5% of dogs and 27·7% of polar bears examined. Few walruses and seals were affected. Rodents, wild foxes and sheep were free.

The condition has probably existed in Greenland for many generations. Prophylactic measures, particularly the proper disposal of dog carcasses, were suggested.

—JAS. G. O'SULLIVAN.

NIEDEREHE, H. (1948.) Parasiten als Ursache von allergischen Herzveränderungen bei Schafen. **[Lungworms as a cause of allergic lesions in heart muscle of sheep.]**—*Berl. Münch. tierärztl. Wschr.* No. 7. pp. 77–79. **2942**

Histopathological examination of 50 sheep's hearts revealed histiocytic infiltration in the myocardium. It is suggested that the lesions were caused by allergens from lungworms. Stäubli, Simmonds and Zoller found similar lesions in the hearts of human beings infected with *Trichinella*, no parasites being found in the heart muscle.—M. LATZKE.

TODD, A. C., ARBOGAST, F. M., WYANT, Z. N., STONE, W. M. & ELAM, G. W. (1951.) **On the blood picture of sheep exposed to the medium stomach worms.**—*Vet. Med.* **46.** 136–140 & 142. [Authors' summary slightly modified.] **2943**

A pattern of sheep and lamb reaction to exposure to the two medium stomach worms, *Ostertagia circumcincta* and *O. trifurcata*, was established. The immediate reaction to heavy exposures is hemoconcentration of a duration dependent upon age of the host. As the infections proceed, macrocytic hyperchromic anemia can occur. Recovery following exposure occurs in an interval closely associated with maturity of the parasites. Microcytic hypochromic anemia may tend to occur in the recovery period.

MAYHEW, R. L. (1950.) **Studies on bovine gastro-intestinal parasites. XVI. Some results of feeding small amounts of phenothiazine on pure infections of the hookworm** *Bunostomum phlebotomum.*—*J. Parasit.* **36.** 536–540. [Author's summary slightly modified.] **2944**

The results of eight experiments in which phenothiazine was fed daily at the rate of 1·5 g. in the grain ration to calves with pure infections of the hookworm indicate that egg production is not affected but that infective larvae fail to develop in the manure. Four different animals

were used in these experiments ranging in age from six months to two years.

The results of five experiments using 0·5 g. doses indicate that this is probably the approximate minimum amount that will interfere with larval development, since larvae were recovered during two of the experiments.

VOGELSANG, E. G. & POTENZA, L. (1949.) *Onchocerca volvulus* (Leuckart, 1893) Railliet et Henry, 1920. Su presencia en Venezuela. [*Onchocerca volvulus* **infection in Venezuela.**] —*Rev. Med. vet. Parasit., Caracas.* **8.** 3–15. [English and German summaries.] **2945**

Onchocerca volvulus was brought from Africa to America by the slaves and there adapted itself to local fauna and intermediate hosts. It is now carried by various flies of the family Simuliidae in areas around rivers and ravines and has been found in the ligamentum nuchae and the peritoneal cavity of cattle, but is best known as a parasite of human beings. It has now appeared for the first time in Venezuela.—R. MACGREGOR.

FRICKERS, J. (1948.) Het voorkomen van de runderparasiet *Setaria cervi* en de varkensparasieten *Stephanurus dentatus* en *Metastrongylus* in Suriname. [**Occurrence of *Setaria cervi* in cattle and of *Stephanurus dentatus* and *Metastrongylus* in swine in Surinam.**]—*Tijdschr. Diergeneesk.* **73.** 888–890. [Abst. from English summary.] **2946**

Setaria cervi was found in 210 out of 500 slaughter cattle in Surinam, *Stephanurus dentatus* in 362 of 409 pigs and *Metastrongylus salmi* in 146 of 400 pigs. *Stephanurus dentatus* was also found in 70 out of 91 pigs from British Guiana.

TINAZ, A. & KURTPINAR, H. (1950.) Karacabey Harası Tavuklarında *Acuaria* (*Cheilospirura*) *hamulosa* (Diesing, 1857) ve *Subulura differens* (*Sonsino*, 1890) in mevcudiyeti. [**Presence of *Acuaria* (*Cheilospirura*) *hamulosa* and *Subulura differens* in fowls in Turkey.**]—*Türk Veteriner Hekimleri Dernegi Dergisi.* **20.** 202–206. [English summary.] **2947**

First description in Turkey of these two worms. The morphology was described and illustrated and the biology, pathology, prophylaxis and treatment discussed.—H. ERGÜN.

FAIRBAIRN, D. & REESAL, M. R. (1950.) **Complete elimination of micro-organisms from an intestinal parasite** (*Ascaris lumbricoides*).—*Science.* **112.** 792–793. **2948**

The authors described a method for freeing *Ascaris lumbricoides* from micro-organisms for the purpose of physiological investigation. The worms were placed in nutrient broth in flasks in a vacuum desiccator containing pyrogallol to remove oxygen, and then incubated in penicillin. 85% of the worms so treated were freed from micro-organisms.—P. M. JAMES.

FOLEY, R. J. (1950.) **The treatment of canine filariasis.**—*Vet. Med.* **45.** 485–489 & 491. **2949**

Of 57 dogs treated with fuadin, 93% were cleared of microfilariae after treatment ranging from 24–40 days. There were four deaths and six were positive at 120 days.

63 cases were treated with caricide (1-diethylcarbamyl-4-methyl-piperazine dihydrogen citrate) and 94% were negative for microfilariae in 7–65 days. Two dogs died after a single dose of 2·5 mg. per lb. body weight while one dog was treated for 81 days with 25 mg. per lb. The optimal therapeutic dose was 10 mg. per lb. body weight three times a day orally.

Of 25 dogs treated with 1 ml. per lb. of caparsolate sodium (sodium [*p*-carbamyl-phenylarsylenedithio] diacetate), intravenously, 21 were cured. Two dogs died after the second injection. Severe systemic reactions occurred in heavily infected animals.

Of ten animals treated with caricide and caparsolate sodium given simultaneously, all were negative for microfilariae in 15 days and remained so at six months.—JAS. G. O'SULLIVAN.

LAZARUS, M. & ROGERS, W. P. (1950.) **Uptake of phenothiazine labelled with sulphur-35 by the tissues of nematode parasites and their hosts.** —*Nature, Lond.* **166.** 647–648. **2950**

"Labelling" with sulphur-35 enabled studies to be made on the rate of uptake of phenothiazine in the three nematode species *Haemonchus contortus, Nippostrongylus muris* and *Ascaridia galli.* The method by which food is assimilated, tissue distribution of the drug and the differential selection of the drug by the parasite as compared with the host were studied and the findings may be helpful in the use of this important anthelmintic drug.

—S. BRIAN KENDALL.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

NORDSTRÖM, G. (1950.) Några försök med kväve-senapsgasbehandling mot lymfadenos hos nöt. [**Trials of nitrogen mustard gas treatment of lymphadenosis in cattle.**]—*Nord.*

Vet. Med. **2.** 31–41. [English and German summaries. Abst. from English summary.] **2951**

N. treated cattle for lymphadenosis with a nitrogen analogue of mustard gas, $\beta\beta'$ -dichlorodiethyl sulphide. There was remission of varying duration, but no real cure.

NANTA, MARQUÈS, LASSERRE, BAZEX, BRU, & PUGET. (1949.) Premiers résultats, d'une enquête sur les tumeurs vénériennes du chien et de la chienne dans le Sud-Ouest de la France. **[Venereal tumours in dogs and bitches in the South-West of France.]**—*Rev. Méd. vét., Lyon et Toulouse.* **100.** 393–413. **2952**

The authors summarized the results of an epidemiological survey of cases of venereal tumours in dogs, carried out in the South-West of France in 1948. In all, 1,611 cases were recorded in 18 different departments. The Garonne basin appeared to comprise the area with the highest incidence.

The disease was commonest in dogs of three to four years of age, and was rare in dogs under one year old and in very old dogs. Bitches were more commonly affected than male dogs. Details of the fluctuations in incidence associated with age and sex are charted.

No new information on the nature of the causal agent is given.—T. W. F. PAY.

GYE, W. E. (1949.) **The propagation of mouse tumours by means of dried tissue.**—*Brit. med. J.* March 26. 511–515. **2953**

A historical account of basic cancer research, with special reference to the nature of the disease and the transmission of tumours. From the experimental evidence, G. concluded that cancer has a continuing cause and that this, in mammals as in birds, is a virus. Reference is made to a new apparatus designed by Craigie for drying 1 g. or less of cancer tissue. Mouse sarcomas of the strains R3 and C3H and one induced by methylcholanthrene have been propagated using perfectly dry tissue. The material is not regularly active, but preliminary freezing increases activity of the dry tissue.—C. M. S.

I. PASSEY, R. D. & DMOCHOWSKI, L. (1950.) **Freezing and desiccation of mouse tumours.**—*Brit. med. J.* Nov. 18th. pp. 1129–1134. [Authors' summary and conclusions slightly modified.] **2954**

II. PASSEY, R. D., DMOCHOWSKI, L., LASNITZKI, I. & MILLARD, A. (1950.) **Cultivation in vitro of frozen and desiccated mouse tumour tissues.**—*Ibid.* pp. 1134–1136. [Authors' summary and conclusions copied *verbatim*.] **2955**

I. Minced tumours, both sarcomata and carcinomata, retain their power to induce fresh tumours after freezing and subsequent desiccation under the experimental conditions described by GYE [see preceding abst.].

Centrifugation at slow speeds of tumour tissues similarly treated, together with the authors' histological studies, indicate that living cells, and not a virus, are responsible for the results.

II. Suspensions of sarcoma cells which have been frozen in glucose solutions and desiccated may show active growth *in vitro* after reconstitution in glucose. This indicates chiefly that some tumour cells survive freezing and desiccation, and that the tumours which develop in mice injected with tumour material which has been frozen and desiccated arise from such surviving cells. These experiments strengthen the conclusion reached in the first paper [see I above], that surviving cells and not a virus were responsible for the results obtained by Gye *et el.*

HOGREFFE, G. & PEDERSEN, E. (1950.) **Urethane treatment of leukemia in mice.**—*Acta path. microbiol. scand.* **27.** 3–8. [In English.] **2956**

Mice with spontaneous or transplanted leucaemia were injected with urethane. This treatment was not satisfactory in all cases. Generally better results were obtained on transplants, but relapses occurred after the administration of urethane was discontinued.

—E. EDEN.

RILEY, V. (1950.) **Chromatographic studies on the separation of the virus from chicken tumor I. I. Effect of salt concentration on adsorption, elution and purification.**—*J. Nat. Cancer Inst.* **11.** 199–214. [Abst. from author's summary.] **2957**

RILEY, V. (1950.) **Chromatographic studies on the separation of the virus from chicken tumor I. II. Zonings purification and recovery of the agent from the column.**—*Ibid.* 215. [Author's summary copied *verbatim*.] **2958**

I. An account of the use of chromatographic adsorption principles applied to the problem of separating the virus of chicken tumor I from the closely associated tissue components, and of the behaviour of the agent in respect to adsorption, elution, purification, and recovery in a chromatographic system. There was strong adsorption of the agent on the column at a salt concentration of 0·9%, 0·154 molar. As the salt concentration was decreased, the elution of the virus increased logarithmically

to an asymptotic region between – 4 log molarity and distilled water.

Purified tumor-agent was concentrated and further resolved on the Celite column to yield virus-nitrogen ratios over five times the starting material, with a maximum increase of 660% virus per unit of nitrogen.

II. The chromatographic zoning characteristics of the virus-like agent of chicken tumor I on diatomaceous silica (Celite) columns are described. Resolution of agent and non active nitrogen components are demonstrated.

Tumor-agent, purified by previously described methods, was further separated from contaminating nitrogenous components to yield a maximum potency-nitrogen ratio of 6·4 times the partially purified starting material.

Approximately 24 per cent of the virus from 100 ml. of a crude tumor extract was recovered in a single fraction at a concentration of approximately 80 per cent of the starting preparation. The potency-nitrogen ratio indicated a twenty-fold increase in agent purification in a single stage operation.

RAO, S. B. V., DAS, J., RAMNANI, D. R. & IYER, S. G. (1950.) **Studies on avian leucosis complex (fowl paralysis).**—*Indian vet. J.* **26.** 497–506. **2959**

Three serial passages of avian leucosis complex virus were made in healthy chicks by intraperitoneal injection of material obtained from visceral lesions of an infected case. Symptoms were observed between the fifth and the 205th days after inoculation. The disease was also transmissible by contact of the healthy with the infected birds. Even though the infective material was from visceral lesions, neural and ocular forms of the disease were also observed.

—P. R. NILAKANTAN.

See also absts. **2903** (enzootic abortion in ewes and psittacosis-lymphogranuloma group); **3112** (book, cancer).

NUTRITIONAL AND METABOLIC DISORDERS

BELL, M. C., WHITEHAIR, C. K. & GALLUP, W. D. (1951.) **The effect of aureomycin on digestion in steers.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 284–286. [Authors' summary slightly modified.] **2960**

The effect of feeding crystalline aureomycin hydrochloride on digestion and nitrogen retention was determined in balance trials with six steers. Feeding 0·2 g. daily caused a marked reduction in the digestibility of crude fiber. It also reduced the digestibility of dry matter and of nitrogen-free extract. When 0·6 g. was fed daily to steers, it produced a marked anorexia and a fetid diarrhea within 48 to 72 hours after the feeding was discontinued. Continued feeding of 0·2 g. daily, produced somewhat milder digestive disturbances.

HOLMES, J. R. (1951.) **Carbohydrate metabolism in the bovine. I. Intravenous glucose tolerance in the healthy cow. II. Intravenous glucose tolerance in various diseases, including clinical ketosis.**—*J. comp. Path.* **61.** 1–14 & 15–25. [Author's summaries slightly modified.] **2961**

I. Observations were recorded on the intravenous glucose tolerance of the healthy cow. Six animals were used in the investigation and a total of 26 tests was carried out. A standard dose of 0·3 g. per kg. in 20% aqueous solution was used. The relationship between the amount injected and the glucose lost in the urine was obtained. The possible value of the method as a liver function test in the bovine is considered.

II. The intravenous glucose tolerance of three diseased animals was recorded. An attempt was made to assess the value of the method as a liver function test. Three ketosis cases are described in which glucose was given intravenously. No marked change from normal in glucose tolerance was observed. The effect on the blood sugar level was transient and it is suggested that therapeutically subcutaneous administration may be of more value owing to slower and hence more prolonged absorption.

TALSMA, D. (1951.) Het effect van lichaamsbeweging op de gehalten aan glucose en acetonlichamen in het bloed bij acetonaemia post partum. **[The effect of movement on the glucose and acetone bodies of the blood in parturient ketosis of milk cows.]**—*Tijdschr. Diergeneesk.* **76.** 161–162. [English summary.] **2962**

The blood sugar content of cows with acetonaemia increased from an average of 30 to 52 mg. % after walking for an hour. The content of ketone bodies dropped from an average of 25·5 to 17·6 mg. % (6 cows tested). By letting cows with acetonaemia walk for an hour every day most cases recover.

—C. A. VAN DORSSEN.

STERN, J. R. & MCGINNIS, J. (1951.) **Toxicity of glycine for vitamin B_{12}-deficient chicks.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 233–234. [Authors' summary copied *verbatim*.] **2963**

The plasma levels for non-protein nitrogen and amino nitrogen after administration of glycine were higher in vitamin B_{12}-deficient chicks than in B_{12}-injected chicks. One gram of glycine, when force fed in gelatin capsules, was toxic to starved, B_{12}-deficient chicks and less toxic to B_{12}-deficient chicks which had not been starved. Chicks which had been injected with vitamin B_{12} were able to withstand the glycine whether or not they had been without food.

ROSSITER, R. C. (1951.) **Studies on the nutrition of pasture plants in the south-west of Western Australia. I. The effect of copper, zinc, and potassium on the growth of the Dwalganup strain of *Trifolium subterraneum L.* on sandy soils. II. Visual symptoms of mineral deficiencies on the Dwalganup strain of *Trifolium subterraneum L.*—*Aust. J. agric. Res.* 2.** 1–13; & 14–23. [Absts. from author's summaries.] **2964**

I. The results of pot-culture experiments and field trials designed to examine the effects of copper, zinc, and potassium on the growth of Dwalganup subterranean clover on a number of Western Australian soils are given.

Significant yield increases from application of one or more nutrients were observed on all soils examined.

II. The effect on the clover of deficiency in phosphorus, nitrogen, molybdenum, sulphur, potassium, zinc, copper, calcium and manganese are described.

SJOLLEMA, B. (1951.) Kan toediening van een kaliumzout de therapeutische behandeling van melkkoeien bij acetonaemie, paresis puerperalis en bij verwante syndromen van spierverlamming ondersteunen? **[Potassium chloride in the treatment of ketosis, milk fever and allied diseases.]**—*Tijdschr. Diergeneesk.* **76.** 360–362. [English summary.] **2965**

The value of potassium chloride in the treatment of ketosis, milk fever and allied diseases accompanied by paralysis is discussed.—E. G.

MOULE, G. R. & YOUNG, R. B. (1950.) **Cobalt deficiency of sheep in Queensland.**—*Qd. agric. J.* **71.** 277–280. **2966**

Cobalt deficiency was diagnosed amongst sheep in Queensland for the first time during the winter of 1950. The factors which led to its sudden appearance are not clear. The abnormally heavy rain promoted rapid growth of pasture plants, but may have decreased the rate at which they absorbed cobalt from the soil. In addition, the continued wet weather and heavy ground cover probably prevented contamination of the grass with dust.

The symptoms and methods of overcoming cobalt deficiency are discussed.

BANKS, S. O., BHASKAR, S. N. & WEINMANN, J.P. (1951.) **Effect of strontium chloride feeding on the rat molars and their supporting tissues.**—*Arch. Path.* **51.** 19–29. [Abst. from authors' summary.] **2967**

Strontium chloride added to the drinking water of white rats in concentrations of 1 and 2% produced changes in the molars and their supporting structures.

The changes, details of which are given, were more marked in the group that received 2% than in that which received 1% strontium chloride.

Morphological changes following strontium administration appeared similar but were not identical with those seen in experimental rickets.

CARTWRIGHT, G. E. & WINTROBE, M. M. (1948.) **Studies on free erythrocyte protoporphyrin, plasma copper, and plasma iron in normal and in pyridoxine-deficient swine.**—*J. biol. Chem.* **172.** 557–565. [Abst. from authors' summary.] **2968**

In normal and pyridoxine-deficient pigs, determinations of the mean values of erythrocyte protoporphyrin were $118 \pm 43{\cdot}4$ μg. and $47 \pm 13{\cdot}6$ μg. per 100 ml. of red cells respectively; plasma iron $169 \pm 38{\cdot}8$ μg. % and 468 ± 166 μg. %; plasma copper $206 \pm 26{\cdot}3$ μg. % and $160 \pm 38{\cdot}8$ μg. %; urinary coproporphyrin excretion 104 μg. and 108 μg. per 24 hours.

The fundamental disturbance in pyridoxine deficiency anaemia in pigs may be failure to synthesize protoporphyrin.

Certain similarities between pyridoxine deficiency in pigs and pernicious anaemia in human beings are described.—M. L. BURDIN.

BECK, E. M., FENTON, P. F. & COWGILL, G. R. (1950.) **Nutrition of the mouse. IX. Studies on pyridoxine and thiouracil.**—*Yale J. Biol. Med.* **23.** 190–194. [Authors' summary and conclusions modified.] **2969**

Pyridoxine deficiency in the mouse was characterized by weight loss and increased excitability. Food consumption under the conditions of these experiments was nearly normal. No marked changes in the blood picture directly attributable to pyridoxine deficiency were noted. Starvation reduced the red and white cell counts and the hemoglobin concentrations; it reversed the lymphocyte to granulocyte ratio.

Oral administration of thiouracil in certain dosages permitted maintenance of normal food intake. Under these conditions transient neutropenia was observed.

DOBROWOLSKAÏA-ZAVADSKAÏA, N. (1950.) **The possible role of some intermediary metabolites in general pathology.**—*Rev. Canad. Biol.* **9.** 28–53. [In English. French summary.] **2970**

A general account of the function of pyruvic acid in relation to certain pathological conditions.—P. J. G. PLUMMER.

SURE, B. & EASTERLING, L. (1950.) **The protective action of vitamin B_{12} against the toxicity of DL-thyroxine.**—*J. Nutrit.* **42.** 221–225. [Authors' summary copied *verbatim*.] **2971**

As little as one part of crystalline vitamin B_{12} affords 100% protection against a toxic fatal dose of 666 parts of the thyroid hormone, thyroxine; i.e., 0·3 μg. vitamin B_{12} against 200 μg. thyroxine.

NEUMANN, A. L., JOHNSON, B. C. & THIERSCH, J. B. (1950.) **Crystalline vitamin B_{12} in the nutrition of the baby pig.**—*J. Nutrit.* **40.** 403–414. [Authors' summary copied *verbatim*.] **2972**

Crystalline vitamin B_{12} has been shown to be required by the baby pig. This vitamin and a pernicious anemia liver extract, when injected to supply approximately equal amounts of vitamin B_{12} potency, produced equal responses in growth rate. The equality in growth response indicates that vitamin B_{12} is the growth factor being supplied by the antipernicious anemia liver extract. The relation between the deficiency produced in baby pigs and pernicious anemia in man is discussed.

O'DELL, B. L., WHITLEY, J. R. & HOGAN, A. G. (1951.) **Vitamin B_{12} factor in prevention of hydrocephalus in infant rats.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 349–353. [Authors' summary copied *verbatim*.] **2973**

After female rats, on a diet that contained soybean oil meal as a source of protein, became depleted of the factor that prevents hydrocephalus, the incidence of the abnormality among the offspring was 28%. The addition of a vitamin B_{12} concentrate to the diet or the injection of crystalline vitamin B_{12} in the dams during the early stages of gestation prevented the abnormality in the young animals and increased their viability. Hydrocephalus was not prevented by folic acid alone, but it has not been determined whether vitamin B_{12} alone is effective or whether both folic acid and vitamin B_{12} are required.

BERSIN, T. & BELLER, K. (1950.) **Über tierische Wuchsstoffe, insbesondere Astin M. [Animal growth factors, particularly Astin M.]**—*Tierärztl. Umsch.* **5.** 198–201. **2974**

Addition of a commercial growth factor, Astin M, to the feeding stuffs of 2,000 White Leghorn chicks for ten weeks increased the average weight to 911 g. as compared with 630 g. in controls. Similar weight gains were observed in pig feeding tests. The composition of vitamin B_{12} and its relation to the "Animal Protein Factor" recorded in English and American literature are discussed.—C. M. S.

BARKER, J. R. (1948.) **Physiological dysfunctions and metabolic disorders in grazing animals. Hypocalcaemia, hypomagnesaemia, hypophosphataemia and fog fever.**—*Rep. Proc. Conf. Grassl. & anim. Hlth.* 1948. pp. 86–92. Discussion pp. 93–110. **2975**

Analyses of 1,000 cases indicated that it may be more true to say that milk-fever is a hypophosphataemia since there is a marked lowering of blood P in these cases. Hereford cattle frequently exhibit post-parturient dyspepsia, convulsion, preconvulsive tetany, etc., with a low blood magnesium level. In Channel Island breeds, on the other hand, there is rarely the tetany convulsion syndrome and they have a high blood magnesium level. There is a seasonal variation in the blood magnesium level of the cow pivoting on the equinoxes so that the symptoms will depend on the time of year in which the animal is attacked. In cases where the Ca : P ratio is disturbed 16 oz. of calcium borogluconate solution intravenously gives good results but where the Ca : Mg. ratio is disturbed 16 oz. of a 25% solution of $MgSO_4$ should be given subcutaneously and repeated in four hours if necessary.

"Fog fever" may be caused by protein shock as a result of grazing the second crop of grasses known as fog or feg. The main symptoms are respiratory distress from accumulation of fluid in the lungs. The daily injection of 10 ml. of adrenalin is recommended as the best line of treatment together with glucose magnesium solution subcutaneously and NaCl and treacle in a gal. of water by stomach tube as may be required.

In the discussion A. Messervy reported on conditions in Jersey where TB. and contagious abortion are absent, but a great increase in bloat and metabolic disorders has been noted. A. T. Phillipson reported that clover juice was found to be toxic for sheep but it did not produce signs of bloat nor did paralysis of the rumen by HCN inhibit belching. W. C. Evans considered that

the substance isolated from lucerne resembled an ictogenin and L. G. Anderson questioned the assumption that ruminal stasis is a primary cause of bloat. I. G. Shaw recorded an unusual type of infertility in Ayrshire cattle, the chief symptom of which was irregular oestrous periods. W. S. Gordon reported that whilst the intestinal fluid from some horses paralysed smooth muscle, he had been unable to reproduce grass sickness by feeding cut grass. M. F. Hebeler considered that carbachol (carbamyl choline chloride) gave better results in the treatment of bloat than adrenalin and G. N. Gould considered that ruminal paralysis represented the end phase of bloat and E. L. Taylor suggested that some other factor besides parasites may be associated with outbreaks of husk. G. N. Gould suggested that there might be several different types of bloat and E. L. Taylor did not think that giving calves a small infective dose of lungworm larvae before they were turned out to pasture, in order to stimulate a specific resistance, was a practical possibility. J. R. Barker considered that the usual time for fog fever to appear was 10–12 days after cattle had been put into a field following the removal of a hay crop and that cases of milk-fever occurring when snow was on the ground were accompanied by a low blood magnesium.

—J. A. NICHOLSON.

EAST, J. (1950.) **Oestrogenic effects of subterranean clover [*T. subterraneum L. var. Dwalganup*]: mammary development in the castrate male guinea-pig.**—*Aust. J. exp. Biol. med. Sci.* **28.** 449–458. [Abst. from author's summary.] **2976**

The reaction of the nipple in the castrate male g. pig to a diet of oestrogenically potent subterranean clover was examined.

Oestrogen treatment either in the form of clover ingested or stilboestrol injected caused a similar and statistically significant increase in nipple length over the castrate condition. The effect of the clover diet was obvious at fourteen days, the greatest increase occurring at one month.

There was no change in nipple length which could be attributed to castration, nor did administration of testosterone propionate have any effect on the castrate nipple.

When this androgen was given conjointly with a clover diet, however, the resultant teats were considerably smaller than those of the g. pigs receiving clover alone. The protective action of the testosterone was here manifest although insufficient was supplied to give complete neutralization.

See also absts. **2843** (effect of decomposed fish meal on fowls); **3088** (iodoprotein and lactation); **3089** (egg production and thyroprotein); **3090** (nutritional studies in pigs).

DISEASES, GENERAL

ANON. (1950.) **Australia: Exotic infectious diseases of animals. Their recognition and control. (Originally prepared by a sub-committee of the Biennial Conference of Commonwealth and State Principal Veterinary Officers in 1943. Revised and amplified 1950.)**—*Div. vet. Hyg. Dep. Hlth. Canberra.* Service Publ. No. 4. pp. 68. Canberra: L. F. Johnston, Commonwealth Government Printer. **2977**

This publication has been made available to all veterinarians in Australia to familiarize them with details of exotic diseases which if introduced would constitute a major threat to the Australian livestock industries. The diseases described are rabies, foot and mouth disease, pseudorabies, equine encephalomyelitis, swine fever, rinderpest, fowl plague, Newcastle disease, equine infectious anemia, sheep pox, surra, tropical theilariasis, glanders, tularemia and *Brucella melitensis* infection in domestic animals.—D. C. BLOOD.

VRIJBURG, B. (1950.) Bestrijding van besmettelijke ziekten in Indonesië. **[Control of infectious animal diseases in Indonesia.]**—*Hemera Zoa.* **57.** 590–594. [English, French and German summaries. Abst. from English summary.] **2978**

Methods used in controlling contagious animal diseases in Indonesia are described.

ANON. (1950.) Situation actuelle de l'industrie animale au Japon. **[Present state of livestock diseases in Japan.**—*Bull. Off. internat. Epiz.* **33.** 29–36. **2979**

After the second world war the animal population of Japan fell rapidly, but is now increasing and includes, besides a million horses, two million cattle. Dairy cows number only 200,000 and there are few pigs, sheep, or goats. Japan has nearly 14,000 "licensed veterinarians", [in three grades, university graduates, technicians trained at High Schools and certificated Middle School students. See *V.B.* **19.** 433] of whom 5,000 are in private practice. Rinderpest inoculation has been carried out as a prophylactic measure against possible importation of the disease from

the Asian mainland. Trichomoniasis is an important problem, and attempts are in progress to control it by the extension of artificial insemination. Equine encephalomyelitis flared up in 1948 but is now under control by the use of vaccine prepared in the country; this Japanese virus is said to cause abortion in pigs. Rabies is present, but foot and mouth disease and glanders are believed to be absent from the territories. The incidence of bovine TB. is low.
—F. L. M. DAWSON.

STEWART, R. E. (1950.) **Air-borne contamination from animal houses.**—*Aust. J. Sci.* **13.** 51. **2980**

A technique is described which was used to test for air-borne contamination from animal houses placed beneath the main laboratories, which consisted of converted army huts. Spores of a fungus *Spicaria divaricata* were released by shaking agar cultures in the animal house at noon on Saturday when work had ceased. The animal house was not entered during the week-end and only caretakers entered the main laboratories above. Between 8 a.m. and 9 a.m. on the Monday two Czapek's agar plates were exposed in each of five widely dispersed rooms of the laboratories. Colonies of *S. divaricata* were recovered in each room.—D. F. STEWART.

SARTWELL, P. E. (1950.) **The distribution of incubation periods of infectious disease.**—*Amer. J. Hyg.* **51.** 310–318. [Author's summary slightly modified.] **2981**

Characteristics of the distribution of incubation periods of a number of infectious diseases, as reported in the literature, were reviewed.

The usual frequency curve of incubation time takes the form of a logarithmic normal curve. This appears to be equally true of diseases with very short and very long incubation periods.

The measure of variation in incubation periods used in this study, termed the dispersion factor, is the antilogarithm of the logarithmic standard deviation. Dispersion factors for most of the diseases studied range from 1·2 to 1·5 and are independent of mean length of incubation.

Some epidemiological uses for a knowledge of the distribution of incubation time are discussed.

WALLACE, L. R. (1949.) **Observations of lambing behaviour in ewes.**—*Proc. Ninth Ann. Conf., N.Z. Soc. Anim. Prod. Wellington*, 1949. pp. 85–95. **2982**

Field observations indicate that from 10–20% of lambs in New Zealand die either before or within four weeks after birth. To determine the causes of lamb mortality, 231 ewes of mixed ages were kept under continual observation during lambing, the various parturition phenomena being recorded on a detailed time-table and assistance being given wherever it was considered necessary. The circumstances in which 37 lambs died before the age of four weeks were:—11 died before birth (8 as the result of milk-fever in the ewe); 8 as a result of dystocia; 3 from starvation through faulty udders; 2 following death of the dam; 6 as a result of accidents; 2 during a storm; 5 from undetermined causes. It was concluded that neo-natal mortality of lambs is not due to any one dominant factor, and that it can be reduced only by careful attention to a number of details.—J. F. FILMER.

ENDREJAT, E. (1950.) Über Unfälle nach Schafbadungen in Gammahexan-Mitteln. **[Ear disease caused by sheep dips containing γ-benzene hexachloride.]**—*Tierärztl. Umsch.* **5.** 164–166. **2983**

Some sheep dipped in benzene hexachloride developed otitis and some died. The inclusion of a bactericidal agent in the dip appeared to limit the occurrence of the ear infections.
—R. MARSHALL.

TABOLA, R. J. (1951.) **Swine diseases in 1950.**—*Iowa Vet.* **22.** No. 1. pp. 7–9. **2984**

Observations on cases of oedema of the bowel and on cases which may have been variant swine fever.—E. COTCHIN.

GLÄSSER. (1950.) Zur Prophylaxe der seuchenartigen Herzmuskelentartung bzw. der Apoplexie des Schweines. **[Prophylaxis in epizootic degeneration of the myocardium (fatal syncope) in the pig.]**—*Berl. Münch. tierärztl. Wschr.* No. 1. pp. 4–6. **2985**

G. described six outbreaks of the disease in young pigs. He stated that the following preventive measures yielded good results:—Provide the animals with a run and if possible with a limited amount of pasture. A diet which is too rich in carbohydrates must be avoided. Pigs fed on potatoes and sugar beet only are particularly susceptible. These foodstuffs yield harmful intermediate metabolic substances and use up too much of the vitamin and mineral store in the body. Vitamins A, B, and C, play an important part in the prevention of myocardial degeneration and should be fed in the natural form. Adequate mineral content of pig food is also important.

When cottonseed meal was fed in large quantities the disease was very soon observed.
—G. M. GLAS.

GILMAN, J. W. P. (1949.) **Inherited facial conformation and susceptibility to infectious atrophic rhinitis of swine.**—*Canad. J. comp. Med.* **13.** 266–274. **2986**

Using material obtained from rabbits that had been infected artificially with porcine infectious atrophic rhinitis, 17 piglets derived from two litters of Yorkshires and 17 piglets derived from two litters of Tamworths were each given six nasal instillations at 2–3 days' interval, when between two and four weeks of age. Related litters of control animals were maintained on rhinitis-free premises.

Relative measurements of the length of the nasal cavity were taken from X-ray plates of the heads of all the animals at weekly intervals and the animals were also weighed. There was no evidence of the existence of breed resistance in Tamworth pigs, nor of relationship between the short-nosed Yorkshire breed and susceptibility to the disease. It was, however, observed that the disease occurred more frequently among short-nosed Tamworths than among longer-nosed Tamworths.—RONALD GWATKIN.

SCHWEIZER, Z. VON R. (1949.) Beobachtungen über Wildkrankheiten. **[Diseases of game.]**—*Schweiz. Arch. Tierheilk.* **91.** 391–396. **2987**

S. reported the results of nearly 300 examinations of wild animals which were found dead or were found to be diseased when shot. Species examined were the European ibex (*Capra ibex*), red deer (*Cervus elaphus*), chamois [*Rupicapra rupicapra*), roe deer (*Capreolus capreolus*), fox (*Vulpes vulpes*), hare (*Lepus europeus*), marmot (*Marmotta marmotta*), badger (*Meles meles*) and various birds. Parasitic diseases were commonest, especially lungworm infestation.

—ROY MACK.

EL HINDAWY, M. R. (1950.) **Studies on the blood of dogs. IV. Haematological findings in dogs suffering from some common diseases: (a) Pneumonia; (b) Distemper.**—*Brit. vet. J.* **106.** 119–127. **2988**

Total red cell count, haemoglobin, colour index, reticulocyte count, and total, differential and Schilling counts of the white cells were made in 26 dogs with pneumonia. Ten died and sixteen recovered. In the milder cases, anaemia and reticulocytosis were slight, leucocytosis (due to neutrophilia) was marked, and there was a shift to the left of the white cells. In the more severe cases, anaemia and reticulocytosis were more pronounced and a terminal leucopenia was observed.

Eighteen dogs with distemper similarly examined had anaemia and leucocytosis. The differential white cell count showed neutrophilia, lymphopenia and monocytosis. A shift to the left of white cells together with the appearance of immature cells was observed.

—G. FULTON ROBERTS.

KRAUSE, D. & WELZ, G. (1950.) Lokale Therapie mit Penicillin-Sulfonamid-Kombinationen beim Hund. **[Local penicillin-sulphonamide treatment of dogs.]**—*Dtsch. tierärztl. Wschr.* **57.** 395–396. **2989**

A powder containing 300 units penicillin and 50 mg. sulphanilamide was applied to wounds of 32 dogs undergoing laparotomy or medullary nailing. Only one wound suppurated. Granulation was somewhat delayed, but not sufficiently to outweigh the advantages of the treatment.

In 11 cases of balanitis, 1,000 units penicillin and 1 g. sulphanilamide were inserted into the prepuce after washing. The discharge disappeared in 1–3 days, but relapse or re-infection occurred in six cases.

An eye ointment containing 300 units penicillin and 50 mg. sulphanilamide was used to treat 72 dogs with conjunctivitis. Simple infections cleared on the day of application, those involving the cornea in 3–4 days.

—N. DEAN.

DAVIS, H. A. [M.D., C.M., F.A.C.S.] [Associate Professor of Surgery, Director, College of Medical Evangelists, Los Angeles Division.] (1949.) **Shock and allied forms of failure of the circulation.** pp. xii + 595. New York: Grune & Stratton. $12.00. **2990**

This long and documented monograph discusses the condition known as shock and the related forms of failure of the circulation from a wide variety of viewpoints. It has been prepared especially with a view to the application of the known knowledge to the human subject but, since a very great deal of the experimental findings have been obtained from the smaller domesticated animals, most of the material is also directly applicable to these subjects. The author has consulted a wide range and a large number of papers up to the years 1945–46. The relevant literature is listed as an appendix to each chapter.

The author deals briefly with the historical background of the problem and produces a reasoned definition and classification of the various aspects of the shock and shock-like states. Diagnosis of the condition is set out at some length. In subsequent chapters the pathogenesis, the physiological and biochemical changes, and the pathology of traumatic shock

and haemorrhage are discussed. The pathophysiology in man and the lower animals as a result of oxygen deficiency is then considered. Irreversible shock is discussed in a separate chapter.

Circulatory failure associated with toxaemias and infections, diseases of the liver and adrenal glands, medical, surgical and obstetrical interference, thermal injury and anaesthesia is reviewed and discussed in detail.

In the final chapter the basic treatment and management of shock and the allied forms of circulatory failure are set out and specific, prophylactic and emergency treatments of various types of shock are dealt with at some length.

The book is well produced and well printed.
—F. R. Bell.

Dugal, L.-P. (1951.) **Effects of cold, ascorbic acid, and age on "formaldehyde-induced" arthritis in the white rat.**—*Canad. J. med. Sci.* **29.** 35–47. **2991**

Formaldehyde-induced arthritis in rats was considerably aggravated by exposure to cold. The condition was greatly diminished by ascorbic acid in adult rats but not in young rats. It was accompanied, in animals exposed to cold, by severe oedema of the penis. This effect was strikingly diminished in intensity and frequency by large doses of ascorbic acid.—R. Gwatkin.

Movitt, E. R., M.D. [Acting Chief of Medicine, Veterans Administration Hospital, Oakland, California.] (1947.) **Jaundice. Its pathogenesis and differential diagnosis.** pp. xvi+261. London: Oxford University Press. 42s. **2992**

This monograph has been produced for medical practitioners as an aid to completing a differential diagnosis of those diseases where jaundice appears as a symptom.

In the first part of the book the author reviews briefly, in an elementary but lucid fashion, the basic knowledge required for an understanding of the pathology of the liver. The anatomy of the liver and biliary system, including the embryology and histology of the organ, and the physiology and related biochemistry are set out. The pathogenesis of jaundice and the various diagnostic procedures for the determination of bile pigments, bile salts and liver function are then considered. The techniques of these various biochemical tests are not given but the author having outlined the principle of a test examines in detail the value of the results as an aid to the physician in making his diagnosis.

In the second part specific syndromes which have jaundice as a salient symptom are considered in detail from the diagnostician's point of view. These include haemolytic jaundice, acute and chronic hepatitis of infectious and non-infectious origin, Weil's disease and yellow fever. In the final chapters the author discusses neoplasms of the liver and the biliary system as causes of obstructive jaundice.—F. R. Bell.

Auer, J. (1948.) **The hypothalamus.**—*Canad. J. comp. Med.* **12.** 192–202 & 221–229. [Abst. from author's summary.] **2993**

A brief review of the relations of the anatomy, physiology and pathology of the hypothalamus. It is pointed out that the hypothalamus should be considered as the highest centre of the vegetative nervous system, integrating and controlling the rhythmic functions of the internal environment in particular. Connections to the lower centres of the brain stem, to the hypophysis, to the thalamus, to the cortex as well as fibres from these areas have been described.

Engström, A. & Engfeldt, B. (1951.) **X-ray diffraction studies on bone tissue during hyperparathyroidism.**—*Acta path. microbiol. scand.* **28.** 152–156. [In English. Authors' summary copied *verbatim*.] **2994**

Bones from dogs treated with heavy doses of parathyroid hormone show the same X-ray diffraction pattern as bones from normal dogs.

See also absts. **2819** (TB. causing bloat); **3113** (animal diseases communicable to man); **3114** (book, poultry diseases); **3115** (book, stress); **3116** (book, veterinary medicine); **3117** (book, surgery); **3118** (book, small animal practice).

POISONS AND POISONING

Winks, W. R., Sutherland, A. K. & Salisbury, R.M. (1950.) **Nitrite poisoning of pigs.**—*Qd. J. agric. Sci.* **7.** 1–14. [Abst. from authors' summary.] **2995**

A heavy mortality occurred on two farms among pigs fed on soup prepared from beef and offal cooked in well water which was found to have a high nitrate content. Deaths were considered to have been due to nitrite poisoning.

Ham, W. E., Kline, E. A. & Ensminger, M. E. (1949.) **Residual arsenic and strychnine in the tissues of drug-treated cattle.**—*Amer. J. vet. Res.* **10.** 150–153. **2996**

Arsenic trioxide was administered at a level of 18 g. per 1,000 lb. grain ration for 120 days, and nux vomica at a level of 300 g. per 1,000 lb. for 201 days, corresponding to daily dosages of 0·357 g. and 5·698 g. respectively when based

on an average grain consumption. Strychnine was rapidly eliminated from the tissues and organs. There was a decrease in the arsenic content with increasing length of the period between cessation of drug administration and slaughter and the highest figures were yielded from animals slaughtered immediately after termination of the trial period; figures for tissues of those animals slaughtered after a 41-day depletion period, and tissue collected by biopsy from animals after a 20-day depletion period did not differ appreciably from those for control animals. The blood pictures of treated animals remained unchanged. The authors concluded that the amount of dangerous residues of the toxic ingredients in the meat of animals previously administered solution containing arsenic (*e.g.* Fowler's solution) as a stimulant is not great, but that a depletion period between cessation of treatment and slaughter should be recommended.—C. Horton Smith.

Denz, F. A. (1951.) **Poisoning by *p*-nitrophenyl diethyl thiophosphate [E. 605]: a contribution to the study of anticholinesterase compounds.**—*J. Path. Bact.* **63.** 81–91. [Author's summary modified.] **2997**

Rats poisoned with *p*-nitrophenyl diethyl thiophosphate and surviving for at least 3 hours have lachrymation, excessive salivation, chromodacryorrhoea, muscular weakness, diarrhoea and embarrassed repiration.

The most constant lesion in animals dying after three hours is in the submaxillary glands, where the acinar cells of the alveolar portion are vacuolated and shrunken and the cells of the tubular portion filled with eosinophilic granules. Vacuolation also occurs in the parotid and lachrymal glands and in the acinar portion of the pancreas. The sublingual and Harderian glands have increased secretory activity but no degenerative changes. The thymus and spleen are depleted of lymphocytes but the lymph nodes are normal. The changes are attributed to the inactivation in the body of cholinesterase by E.605, with resulting accumulation of acetylcholine at cholinergic nerve endings.

Riishede, J. (1950.) **Treatment of acute barbiturate poisoning. A comparison of nikethamide and amphetamine.**—*Lancet.* **259.** 789–792. **2998**

An account of barbiturate poisoning in human beings and of the use of nikethamide and amphetamine, together with appropriate symptomatic and other treatment.—H. Paver.

Collins, W. F. & Wild, H. (1950.) **Poisonous plants of the Marandellas district.**—*Rhod. agric. J.* **47.** 106–125. **2999**

The description, occurrence and poisonous properties of 20 poisonous plants were presented, the plants chosen being common in the Marandellas district of Southern Rhodesia, a district of high veld with an altitude of about 5,000 ft. and a rainfall of 30–35 in.

The plants described are:— *Ranunculus pubescens* (buttercup), *Nerium oleander* (oleander), *Senecio latifolius* (ragwort), *Cucumis africanus* (wild cucumber), *Gloriosa superba* (flame lily), *Kalanchoe thyrsiflora* (white lady), *Euphorbia ingense* (candelabra euphorbia), *Cheronia transvaalensis* (Rhodesia wild gentian), *Moraea zambesiaca* (Zambesi tulip), *Datura tatula*, (purple thornapple), *Solanum incanium* (bitter apple), *Mundulea sericea* (fish poison bush), *Ornithoglossum viride* (cake slangkop), *Ricinus communis* (castor oil plant), *Lascosiphon kraussianus* (yellow heads), *Melia azedarach* (syringa), *Pteris aquilina* (bracken fern), *Sariostemma viminale* (leafless milkweed), *Equisetum ramosissimum* (horsetail dronkgras), and *Diplodia zeae* (dry rot of maize).—H. Paver.

Jacquet, J. (1950.) Intoxication des bovidés par la fougère aigle, *Pteris aquilina L.* **[Bracken poisoning in cattle.]**—*Bull. Acad. vét. Fr.* **23.** 207–211. **3000**

An account of bracken poisoning in four cows and a bull. The use of B.A.L. (2, 3-dimercaptopropanol), vitamin B_1 and antihaemorrhagic compounds in the treatment of the condition was discussed, but no information was given of their value.—Malcolm Woodbine.

Drahn, F. (1951.) Futtervergiftungen bei Ziegen. **[Plant poisoning in goats.]**—*Mh. Vet.-med.* **6.** 29–30. **3001**

An account of rhododendron poisoning in goats.—R. Marshall.

Herms, H. (1950.) Über zwei Fälle von Morchelvergiftung beim Hunde. **[Morel (*Helvella esculenta*) poisoning in dogs.]**—*Berl. Münch. tierärztl. Wschr.* No. 8. p. 161. **3002**

Cases of poisoning by the edible fungus *H. esculenta* occurred in a dachshund six months old after drinking a broth in which the fungus had been cooked, and in a dachshund three years old given a spoonful of the fungus, eaten without harm by the owner. The animals vomited some hours later. Haemoglobinuria was observed and in the younger animal, blood-stained diarrhoea and slight icterus. Treatment was by intravenous glucose, and bismuth subnitrate and extract of belladonna; vomiting soon ceased, as did the haemoglobinuria after the fourth day.—E. Cotchin.

ROSENBERG, M. M. & PALAFOX, A. L. (1951.) **The effect of creeping indigo (*Indigofera endecaphylla*) on laying chickens.**—*World's Poult. Sci. J.* **7.** 9–15. **3003**

Creeping indigo leaf meal depressed egg production, body weight and feed consumption of laying fowls when quantities of 1·25–5·0% were fed; when 5% was fed hatchability was reduced. It is suggested that the toxic principle could be transmitted to chicks through the egg.

See also absts. **2963** (toxicity of glycine); **2971** (toxicity of DL-thyroxine); **3106** (poisoned baits for wild pigs); **3110** (report, New Zealand).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease.)

DOLL. E. R. & MCGEE, W. A. (1951.) **Septicemic infections of newborn foals.**—*Vet. Med.* **46.** 123–127. [Abst. from authors' summary.] **3004**

Case reports were given on the use of aureomycin for treatment of infections of newborn foals.

MCFARLANE, D. & RENNIE, J. C. (1950.) **The behaviour of substances introduced into the bovine mammary gland *via* the streak canal.**—*Aust. vet. J.* **26.** 53–57. **3005**

A solution of vegetable black was introduced into a total of 100 quarters of cows which were subsequently killed. In some cases the quarter had been milked out prior to injection, and in other cases this was not done. P.M. examination of the injected udders revealed that in those which had not previously been milked out the majority of the lobules contained the dye whether they were normal or pathological. The dye was not, however, present in areas in which as a result of the inflammatory process the milk within the acini and ducts had coagulated. The findings are discussed with reference to the fairly constant proportion of mastitis-affected quarters which do not respond to intramammary treatment even when the organism responsible for the infection is susceptible to the therapeutic agent used.—J. H. WHITTEM.

HESSE, N. C. W. (1950.) Droogzetten van koeien en behandeling van agalactie. [**Drying off of cows and management of agalactia.**]—*Tijdschr. Diergeneesk.* **75.** 129–149. [English, French and German summaries. Abst. from English summary.] **3006**

When cows are dried off by the use of drugs, such as acridine derivatives or $AgNO_3$, this should take place at least 8 weeks before parturition. If, during the lactation period, a quarter cannot be milked for a time, for instance because of injuries, an intramammary application of penicillin in oil-wax can be used. Sulphonamides and penicillin are not of value for drying off udders.

Favourable results in stimulation of the flow of milk may be obtained by administration of (the animal's own) colostrum (40 ml. intramuscularly) and of gonadotropic hormone (pregnant mares' urine 1000–1500 I.U.). In horses the results of injections of gonadotrophin are much less favourable.

Sows react very favourably to the injection of gonadotrophin. The dose for sows is 500 to 1000 I.U.

FIENNES, R. N. T.-W. (1951.) **Antrycide and dimidium.** [Correspondence.]—*Trans. R. Soc. trop. Med. Hyg.* **44.** 605–608. **3007**

F. discusses the relative values of antrycide and dimidium bromide in treatment of trypanosomiasis caused by the various species of pathogenic trypanosomes in domestic animals, particularly in the more refractory secondary chronic type of the disease. In the secondary type of the disease F. reports that he has been able to demonstrate parasitic involvement of the cardiac muscle with severe heart lesions.

He then discusses the causation of the condition resembling photosensitization which has been reported in cattle in some areas in Africa following treatment with dimidium bromide. The areas in which this has occurred are geographically localized, the condition is endemic and the onset of symptoms is delayed, usually for about 60 days. These features do not suggest a primary photosensitization.

F. then describes experiments which suggest that a virus may be involved.

Portions of liver were obtained from an ox which had developed the photosensitization-like syndrome following injection of dimidium bromide. The liver was pulped and filtrates prepared and cattle were inoculated as follows:—Group 1 received dimidium bromide 15 ml. of a 3% solution. Group 2 received 10 ml. of a coarse liver filtrate plus 15 ml. of 3% dimidium bromide solution. Group 3 received 10 ml. of a Seitz filtrate of liver plus 15 ml. dimidium bromide. Group 4 received 10 ml. of Seitz filtrate of liver alone. Photosensitization developed in some animals in each of Groups 1, 2 and 3, but not in Group 4. A similar experiment was made using liver filtrates from one of

the animals in Group 2, with very similar results.

The indications were that a virus was present in the original liver which was normally mild but that its effects were intensified by dimidium bromide.—M.C.

GONCHAROV, I. E. (1949. **[Comparative effectiveness of LP_3, LP_4, acaprin and trypaflavine.]**—*Veterinariya, Moscow.* **26.** No. 4. pp. 21–23. **3008**

Using four groups of cattle infected with *Babesia bigemina*, comparisons were made between acaprin [N, N'-dimethyl quinolylium methyl sulphate-6-urea], trypaflavine [3, 6-diaminomethylacridinium chloride] and two urea preparations labelled LP_3 and LP_4. The results with the last two preparations were as good as with the other two. Similar results were obtained in cattle infected with *Babesia colchica*.

—F. A. A.

HERMAN, V. A. (1950. **[Eliminating haemagglutination in heterogenous blood transfusions and in heterologous serum.]**—*Veterinariya, Moscow.* **27.** No. 2. pp. 45–48. **3009**

The addition of 10–20 ml. (dependent on the titre) of 10% sodium salicylate per 100 ml. serum prevented haemagglutination and eliminated it *in vivo* in animals previously given heterologous serum. Repeat doses 6–7 days later caused, however, anaphylactic shock. A table is given with results of experiments on three dogs and two horses, using horse and cattle serum respectively.—F. A. A.

BEHRENS, H. (1950.) Der Einfluss des Phenothiazins auf das Blutbild der Schafe. **[Phenothiazine and the blood picture in sheep.]**—*Tierärztl. Umsch.* **5.** 190–192. **3010**

B. used sheep to test the effect of phenothiazine on the blood picture. The experiments can be summarized as follows:

After dosing four sheep with a single dose of 1 g. per kg. of phenothiazine the red blood corpuscle (RBC) count fell by 10·8% to 28·6% and the haemoglobin by 2% to 9%; after dosage of three sheep with the same amount divided into three doses the RBC fell by 8·8% to 21% and the haemoglobin by 9·5% to 30%; after dosage of four sheep with 2 g. per kg., divided into three doses the RBC fell by 14% to 26% and the haemoglobin by 7% to 18%. The divided doses were given on each of three successive days.

The anaemia was at its height between the second and sixth days after dosing and the blood picture had returned to normal by the end of two weeks. There was no clinical manifestation of this anaemia. B. suggested that as the normal RBC count in sheep is very high (10–12 million), a reduction of as much as 22.5% is not very serious. He found that sheep with as little as 3·4 million RBC per c.mm. had no clinical sign of illness. Alternatively he suggested that the development of haemolytic anaemia in sheep is usually associated with the formation of Heinz bodies and Vitamin B is antagonistic to this. Vitamin B formed in the body of a ruminant is a safeguard against the clinical manifestations of anaemia. Regeneration of the red blood corpuscles after anaemia is rapid.

—J. EDWARDS.

DUTHY, B. L. (1949.) **Field trials with phenothiazine (P.T.Z.) given as a lick to sheep.**—*E. Afr. agric. J.* **14.** 196–200. **3011**

The value of phenothiazine-salt mixture was tested for sheep on pasture, in and adjoining the Rift Valley, Kenya Colony, where there is salt deficiency, a mixture of drug to salt of 1 : 200 at first and later of 1 : 100 being used. The results are discussed in general terms; they were not conclusive.—J. EDWARDS.

SIEBURTH, J. MCN., GUTIERREZ, J., MCGINNIS, J., STERN, J. R. & SCHNEIDER, B. H. (1951.) **Effect of antibiotics on intestinal microflora and on growth of turkeys and pigs.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 15–18. [Abst. from authors' conclusions.] **3012**

In view of the inhibitory effect of penicillin and terramycin on *Clostridium welchii* in the intestinal tract of turkeys and of terramycin in pigs, these antibiotics may promote growth by preventing enterotoxemia.

LOOSLI, J. K. & WALLACE, H. D. (1950.) **Influence of APF and aureomycin on the growth of dairy calves.**—*Proc. Soc. exp. Biol., N. Y.* **75.** 531–533. [Authors' summary copied *verbatim.*] **3013**

Adding an Animal Protein Factor (APF) supplement and crystalline aureomycin to the diet of young dairy calves significantly increased the rates of growth and reduced the incidence and severity of diarrhea. The data suggest that the responses observed may be largely the result of an antibiotic effect of aureomycin.

ROBIN, V., CHARTON, A. & MORANGE, R. (1950.) La streptomycine: ses indications en médecine vétérinaire. **[Streptomycin in veterinary medicine.]**—*Rec. Méd. vét.* **126.** 449–466. **3014**

In general, infections in the horse, cow, dog and turkey caused by *Pseudomonas pyocyanea, Staph. aureus, Pasteurella septica, Bact. coli,*

Salmonella sp., *Proteus* sp. and *Haemophilus bronchisepticus* responded favourably when appropriately treated and with concomitant penicillin when necessary.

—Malcolm Woodbine.

Jawetz, E., Gunnison, J. B. & Coleman, V. R. (1950.) **The combined action of penicillin with streptomycin or chloromycetin on enterococci *in vitro*.**—*Science*. **111.** 254–256. **3015**

A note on the synergistic effect of penicillin-streptomycin mixtures *in vitro* against nine strains of enterococci isolated from the blood or urinary tract of human beings. The rate of bactericidal action was greater than with penicillin alone and this increase in rate was observed with concentrations of penicillin from 6–300 μg. per ml. and of streptomycin from 25–100 μg. per ml. The combined effect was more than a summation of the individual drug effects. The rapid death of the entire enterococcal population exposed to streptomycin-penicillin mixtures indicated at least a ten-fold potentiation of penicillin action.

Chloromycetin (10 μg. per ml.) mixed with penicillin (6 μg. per ml.) gave a rate of bactericidal action which was less than with penicillin alone.

—J. H. Hale.

Caldwell, E. R., Jr., Spies, H. W., Wolfe, C. K., Lepper, M. H. & Dowling, H. F. (1950.) **The treatment of various infections with terramycin.**—*J. Lab. clin. Med.* **36.** 747–753. [Part of authors' summary copied *verbatim*.] **3016**

Terramycin therapy was employed in the treatment of 171 patients with various infections. Terramycin was effective in the treatment of pneumococcic pneumonia, streptococcic sore throat and pneumonia and scarlet fever, gonorrhea, Shigella dysentery and some urinary tract infections. It was ineffective in mumps and measles. In other diseases, further studies are needed to determine its usefulness.

Cercós, A. P. (1950.) Antibiótico DINR. 49–1 (fungocina) producido por " Bacillus subtilis " con actividad sobre hongos patógenos de animales y vegetales. [**Antibiotic DINR. 49–1 (fungocin) produced by *Bacillus subtilis* with activity against pathogenic fungi of animals and plants.**]—*Rev. Invest. agríc., B. Aires.* **4.** 13. [English summary.] [Abst. from abst. in *Rev. appl. Mycol.* **30.** 59. (1951.)] **3017**

Details are given of the mode of isolation, physiological properties, and toxicity to (*a*) human and animal and (*b*) plant pathogens of fungocin, secreted by *Bacillus subtilis*.

Schlaak, W. (1950.) Blutsenkungsreaktion und Kalziumtherapie. [**The blood sedimentation test and calcium therapy.**]—*Dtsch. tierärztl. Wschr.* **57.** 90–92. **3018**

The curative effect of calcium administered subcutaneously or intravenously in equine myohaemoglobinaemia, laminitis and purpura haemorrhagica in horses was always associated with retarded blood sedimentation. When calcium therapy failed to produce retarded sedimentation the treatment was unsuccessful.

—Nesta Dean.

Hench, P. S. (1950.) **The present status of cortisone and ACTH in general medicine.**—*Proc. R. Soc. Med.* **43.** 769–773. **3019**

Dealing with disease in human beings H. outlined the derivations of cortisone and adrenocorticotrophic hormone (ACTH) and their differences, and discussed their actions in human patients. ACTH must be given 3–4 times per day while once per day suffices for cortisone which not being a protein does not produce any foreign protein reactions. 100 mg. of ACTH might stimulate production of 200 mg. or more of cortisone. The effect of these hormones on diseases which appeared to be non-hormonal was outlined. There was marked improvement in cases of rheumatoid arthritis and rheumatic fever, but relapses occurred especially in the former, on the withdrawal of the drug. Other conditions were discussed in which the hormones appeared to be strongly anti-allergic. Marked results were reported in the local treatment of inflammatory diseases of the eye.

The mode of action and the few side effects of the hormones were discussed. Oral administration of cortisone tablets to 25 rheumatoid patients gave results comparable to intramuscular injection of the same dose.

—George C. Rafferty.

Teilum, G., Engbaek, H. C. & Simonsen, M. (1950.) **Effects of cortisone on plasma cells and reticulo-endothelial system in hyperimmunized rabbits.**—*Acta endocrinol.* **5.** 181–193. [In English. Authors' summary slightly modified.] **3020**

After treatment with cortisone " Merck " (20 mg. daily subcutaneously for up to 6 days) the findings were as follows:—Marked regression (disintegration and granular decomposition) of the massive accumulation of plasma cells in the spleen of rabbits hyperimmunized against *Haemophilus influenzae*, and a decrease in the scattered accumulation of plasma cells in normal animals. Cytoplasmic changes in the reticulum

cells of the perifollicular zone of the spleen, with transition to a homogenous prehyaline or hyaline substance, and marked hyalinosis of the splenic reticulum proper in the perifollicular zone and around the vessels. These findings show what profound influence the adrenal cortex has on the serological defence reaction, and indicate that in diseases of the mesenchymal tissues cortisone causes a change from an active prehyaline phase, characterized by accumulation of plasma cells and hyperglobulinaemia, to an inactive hyaline phase (compare the phasic development in sarcoidosis.) In all the animals treated with cortisone for six days there occurred a very large accumulation of glycogen in the hepatic cells, corresponding to the morphological picture found in glycogen-accumulation disease or v. Gierke's disease. The examination of the blood of the animals treated with cortisone showed a marked rise in the α-globulin fraction and a less marked fall in γ-globulin.

ORSKOV, J. (1950.) **Influence of cortisone and ACTH on the mechanism of infection?**—*Acta path. microbiol. scand.* **27.** 770–772. [In English. Author's summary modified.] **3021**

Experimental studies on the possible influence of cortisone and ACTH on the mechanism of infection show that, under the given experimental conditions, these substances did not alter the mechanism of the defensive apparatus of the body with regard to *Salmonella paratyphi B* and *Staphylococcus aureus* infections in white mice.

LEROY, G. V., TWEEDY, W. R. & ASHKENAZY, M. (1951.) **Radioactive di-iodo^{131} fluorescein: the health physics aspects of its use for diagnostic studies.**—*J. Lab. clin. Med.* **37.** 122–128. [Authors' conclusions copied *verbatim*.] **3022**

Di-iodo^{131}-fluorescein, in doses of 1,000 to 1,100 μc, intravenously, can be used safely for diagnostic purposes. There is no significant radiation hazard to the patient, or to the institution. There is a potential radiation hazard in the case of the attendants of incontinent patients, but in practice significant contamination has not been observed.

MARCENAC, N. (1949). Le curare, adjuvant de l'anesthésie et de quelques thérapeutiques médico-chirurgicales. [**The use of curare as an anaesthetic.**]—*Rec. Méd. vét.* **125.** 97–107. **3023**

A discussion of the uses of curare and its relation to intocostrin [a physiologically standardized curare extract or its active component, tubocurarine chloride], myanesin [3-orthotoloxy-1, 2-propanediol], derivatives of quinidine, trimethyloctylammonium iodide and several other synthetic products and the indications for its use.—MALCOLM WOODBINE.

RIEMSCHNEIDER, R. (1950.) Zur Kenntnis der Kontakt-Insektizide II. [**Contact insecticides.**] —*Pharmazie.* **9.** Suppl. No. 1. pp. 649–800. **3024**

This is a detailed discussion of the preparation and properties of the halogen derivatives of the hydrocarbons used as insecticides; of such substances, for example, as D.D.T. and related compounds and of benzene hexachloride.

—E. M. J.

LITTLE, C. A. (1950.) **A vat-side test for assaying DDT-BHC in dipping vats [dipping tanks].** —*Vet. Med.* **45.** 480–482 & 484. **3025**

A note on a field test for D.D.T. and benzene hexachloride involving the preparation of a benzene extract and recording of the specific gravity and temperature of this extract, a ready-reckoner table being used to read off the concentration of either drug in the dip.—P. M. JAMES.

See also absts. **2808–2809** (aureomycin in mastitis); **2812** (treatment of mastitis); **2829** (cortisone and vaccination against TB.); **2832** (streptomycin and Johne's bacillus); **2833** (P.A.S. in Johne's disease); **2840** (sulphonamides in avian pasteurellosis and salmonellosis); **2857** (formol in epizootic lymphangitis); **2872** (alloxan in bartonellosis); **2876–2878** (antrycide in trypanosomiasis); **2880** (blackhead); **2882** (acaprin in piroplasmosis); **2885** (aureomycin in toxoplasmosis); **2887** (influence of chemicals on virus of F. & M. disease); **2896–2897** (ACTH in influenza); **2930** (insecticides for ticks); **2934–2935** (antimony compounds against *Dicrocoelium lanceolatum*); **2944** and **2950** (phenothiazine); **2949** (filariasis); **2951** (nitrogen mustard in lymphadenosis); **2956** (urethane in mouse leucaemia); **2960** (aureomycin and digestion); **2965** (potassium chloride in ketosis); **2967** (effect of strontium chloride on rat molars); **2969** (pyridoxine and thiouracil); **2971–2974** (vitamin B_{12}); **2983** (benzene hexachloride); **2989** (sulphonamide-penicillin wound treatment); **2998** (barbiturate poisoning); **3000** (vitamin B in bracken poisoning); **3057–3058** (D.D.T. in milk); **3119** (book, radio-active isotopes); **3122** (book, adrenal cortex).

PHYSIOLOGY, ANATOMY AND BIO-CHEMISTRY

I. BEHRENS, H. (1950.) Die Blut-Liquor-Schranke beim Pferd. 2. Mitteilung: Der Ca-Gehalt des Liquors und des Blutserums. [**Blood-brain barrier in the horse. 2. Calcium content of the cerebrospinal fluid and the blood serum.**]—*Dtsch. tierärztl. Wschr.* **57.** 294–295. **3026**

II. BEHRENS, H. & BRÜNING, P. (1950.) Die Blut-Liquorschranke beim Pferd. 3. Mitteilung: Der Kaliumgehalt der Cerebrospinalflüssigkeit und des Blutserums. [**The blood-brain barrier in the horse. 3. Potassium content of the cerebrospinal fluid and the blood serum.**]—*Ibid.* 366–367. **3027**

I. The Ca content of the cerebrospinal fluid averaged 46 mg.% of the serum Ca in 26 healthy adult horses and 49% in seven healthy foals.

II. Determinations were made of the serum potassium content and the potassium content of cerebrospinal fluid obtained by occipital puncture from healthy horses. The potassium values of the cerebrospinal fluid averaged 12.66 mg.% and the serum potassium 17.15 mg.%, the ratios varying between 0·63 and 0·86, the average being 0.74. It would appear that a relationship exists between the serum potassium value and the amount of potassium in the cerebrospinal fluid.—J. A. NICHOLSON.

HURST, E. W. & DAVIES, O. L. (1950.) **Studies on the blood-brain barrier. II. Attempts to influence the passage of substances into the brain.**—*Brit. J. Pharmacol.* **5.** 147–164. [Authors' summary slightly modified.] **3028**

Using dyes, convulsant drugs, morphine, sulphanilamide, or sulphanilic acid as test-substances, the authors sought to increase or decrease their passage into the brains of mice. For this purpose they administered adrenaline and pituitrin, theocin [theophylline], sodium lactate, urethane, histamine, or hexamine intravenously, or 50 per cent. glycerol intramuscularly. They also exposed animals to coal-gas or to ether, and stained others by repeated injections of vital dyes. None of the drugs or treatments had a consistent effect on all the test-substances. These findings recall the conclusion of Stern and her colleagues that measures increasing the penetration of one substance into the brain do not necessarily increase penetration of other substances more or less similar chemically or physico-chemically. The effects of combining the different drugs and treatments with the various test-substances are concisely summarized in a table. The authors discussed the validity of the experiments in which convulsant drugs or morphine constituted the test-substances, and concluded that it is preferable to use in this rôle chemical substances the concentration of which in the brain can be measured.

BAKER, F. & NASR, H. (1950.) **Microbial digestion in the alimentary tract. Food structure and microbial interrelations.**—*Advanc. Sci.* **6.** 347. **3029**

A brief summary of the authors' investigations into the site and mechanism of starch digestion in various laboratory and domestic animals. Attention is drawn to the possible value of unground or raw starch in providing nutritional factors by refection.—P. H. HERBERT.

WIDDOWSON, E. M. (1950.) **Chemical composition of newly born mammals.**—*Nature, Lond.* **166.** 626–628. **3030**

The fat content of the human infant and new-born g. pig (16% and 10% respectively) is much higher than in other species investigated (mouse, cat, rat, rabbit, and pig all contained 1–2% of fat at birth). The fat content cannot be correlated with the state of maturity at birth, but may be greater in animals which have a long gestation period. Some interest attaches to the observation that the two species which contain much fat at birth also exhibit a lipaemia of pregnancy.

Since hair is rich in zinc, it is not surprising that species which are hairy at birth contain more zinc than non-hairy species, but the mouse is anomalous in this respect having a higher content of zinc than any other species.

The liver of the rabbit contained much more iron than the livers of other species. Species with low iron in the liver sometimes had high contents of copper or zinc.—R. MARSHALL.

SINGER, R. B. (1951.) **A new diagram for the visualization and interpretation of acid-base changes.**—*Amer. J. med. Sci.* **221.** 199–210. [Author's summary modified.] **3031**

A description of a diagram for plotting cases of acid-base disturbance. The vertical axis represents the buffer base concentration, and the horizontal axis represents arterial CO_2 pressure. Simultaneous values of arterial pH and plasma CO_2 content are given by starting contour lines.

A given state of acid-base balance is represented by a point on the diagram, which can be used to portray any number of cases of acid-base disturbance, or the pathway of disturbance in a single case.

DEL MONTE, P. (1950.) **Ricerche su alcune variazioni in liquidi organici e su modificazioni macro e microscopiche di organi e tessuti in animali bovini a dieta anidra. [Variations in the blood, body fluids, organs and tissues of cattle kept on a water-free diet.]**—*Riv. Med. Vet. Zootec.* **3.** 73–84. [English summary.] **3032**

The author gives an account of variations in the blood, and other body fluids and on the organs and tissues of cattle, maintained on a water-free diet for four days.

The osmotic pressure of the blood increased but returned to normal after the ingestion of water.

The author discusses the body changes effected during this period of water starvation, including the changes associated with a drop in the milk secretion and in the volume of urine excreted. There was an increase in the average

diameter of the red corpuscles. The cholesterol content of the blood was slightly increased.

DA SILVA, A. G. (1949.) Contribuição ao conhecimento do fundo de ôlho normal do cão. **[The fundus of the eye of the dog.]**—*Rev. Fac. Med. vet., S. Paulo.* **4.** No. 1. pp. 197–219. [English summary.] **3033**

The author observed two less vascularized zones in the tapetum lucidum, one of which, situated between the nasal and the superior veins, he considers to be comparable to the macula of the retina in man. Anaesthetized dogs directed only this area to the light in response to sounds such as whistling or calling, and even non-anaesthetized, sleeping dogs on waking in response to such sounds invariably attempted to direct this area to the light. It was therefore concluded that this zone has a similar function to that of the macula in man, the difference being purely one of localization.

—H. DE BARTOS-RIVALIER.

FERRARA, B. (1950.) Ricerche sulla cronologia dentaria del gatto. **[Dentition of the cat.]**—*Riv. Med. Vet. Zootec.* **2.** 353–369. [English and French summaries.] **3034**

The author gives an account of the dentition of the cat based on personal studies.

BONFANTI, C. (1951.) La ghiandola mammaria nel cane maschio. **[The mammary gland in the new-born male dog.]**—*Riv. Med. Vet. Zootec.*, **3.** 109–124. [English, French and German summaries. Abst. from English summary.] **3035**

The mammary gland in new-born male dogs is rudimentary. At puberty it sometimes attains a high degree of organization and has a structure similar to that of the female, although its glandular substance is reduced. Signs of secretory activity may sometimes be found in well-formed mammary alveoli.

NOVAZZI, G. (1950.) Contributo allo studio del fattore diffusore (mesomucinasi, ialuronidasi) negli animali domestici. 1. Ricerche nei liquidi organici ed in alcuni materiali gravidici della specie bovina. **[Contribution on the study of the diffusion factor (mesomucinase, hyaluronidase) in domestic animals. I. Examination of serum, urine and milk of pregnant and non-pregnant cows.]**—*Zootec. Vet. Milan.* **5.** 1005–1014. [English and French summaries. Abst. from English summary.] **3036**

N. has never found hyaluronidase in cow's serum, urine or milk during the different periods of sexual activity. In some materials from pregnant cows the liquor folliculi had considerable anti-hyaluronidasic activity.

DAVIS, W. D., Jr., SEGALOFF, Z., JACOBS, W. S. & CALLAHAN, J. B. (1950.) **Renin sensitivity and renin substrate levels in adrenalectomized dogs.**—*J. Lab. clin. Med.* **36.** 729–734. [Authors' conclusions copied *verbatim.*] **3037**

Definite vascular responses to renin and the presence of renin substrate have been demonstrated in dogs immediately after adrenalectomy as well as after frank adrenal insufficiency has developed. Diminution in renin response, which has been noted by us as well as others, is believed to be related to a loss of general efficiency of the organism secondary to adrenalectomy rather than to any specific loss of adrenal function.

TUBA, J. & HOARE, R. (1951.) **On rat serum lipase. II. The effect of various experimental states.**—*Canad. J. med. Sci.* **29.** 25–33. **3038**

A continuation of studies on the enzyme in rat serum which hydrolyzes tripropionin, tributyrin and ethyl butyrate.—R. GWATKIN.

ALSTRÖM, IN. (1948.) Kemiska bestämningar av para-aminobenzoesyra i fodermedel samt undersökningar av para-aminobenzoesyreeliminationen med urinen hos olika djur. **[Chemical determination of *p*-aminobenzoic acid in foodstuffs and the elimination of *p*-aminobenzoic acid in the urine of animals.]**—*Skand. VetTidskr.* **38.** 213–238. [English summary.] **3039**

The author studied the metabolism of *p*-aminobenzoic acid in horses, cows, dogs and rats fed special diets of known *p*-aminobenzoic acid content for a week. The *p*-aminobenzoic acid content of the urine was then determined in 24-hour samples (and in one case also that of the faeces). Work was also done with animals which had been treated with sulphanilamide.

Details are given for the extraction and identification of the free *p*-aminobenzoic acid.

The author examined the *p*-aminobenzoic acid content of bread, cooked beef, oats and hay as well as a rats' diet these findings being summarized in tables.

The results indicated that with horses and cattle the amount of *p*-aminobenzoic acid in the urine agreed in general with that in the food. In the dog the amount in the urine varied with composition of the diet, thus there was more *p*-aminobenzoic acid in the urine on a meat diet than on a bread diet. Tryptophane in the rats' diet made no difference to the amount of *p*-aminobenzoic acid in the urine, but the addition of meat increased the excretion.

Two horses and a cow were treated with sulphanilamide (75–100 g. per day for one to one and a half months) and then the urine was examined for *p*-aminobenzoic acid from one to two and a half months after this treatment was stopped. The quantity of *p*-aminobenzoic acid in the urine was greatly increased. This has been interpreted as meaning that the organism has become re-adjusted to a very much higher *p*-aminobenzoic acid metabolism by treatment with sulphanilamide.—HUGH BOYD.

DE BODO, R. C., SCHWARTZ, I. L., GREENBERG, J., KURTZ, M., EARLE, D. P., Jr. & FARBER, S. J. (1951.) **Effect of growth hormone on water metabolism in hypophysectomized dogs.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 612–617. [Authors' summary and conclusions copied *verbatim*.] **3040**

Continued administration of purified growth hormone significantly improves the hypophysectomized dog's impaired response to water load. Concomitantly it increases the daily water exchange to levels seen in surgically induced diabetes insipidus. Growth hormone increases the glomerular filtration rate and renal plasma flow of hypophysectomized dogs but not to the pre-operative levels. It is suggested that growth hormone is one of the factors concerned with the maintenance of normal water metabolism.

BAILEY, K., BETTELHEIM, F. R., LORAND, L. & MIDDLEBROOK, W. R. (1951.) **Action of thrombin in the clotting of fibrinogen.** [Correspondence.]—*Nature, Lond.* **167.** 233–234. **3041**

Although the mode of transformation of soluble fibrinogen into fibrin by the action of thrombin is still uncertain, it seems that the fundamental step is the formation by fibrinogen of amino-terminal residues of glycine in the presence of thrombin.—J. A. NICHOLSON.

KMENT, A. (1950.) Beitrag zur "Plasmagerinnungszeit" der Haustiere. [**The time of coagulation of blood plasma in domestic animals.**]—*Wien. tierärztl. Mschr.* **37.** 461–471. **3042**

Using Quick's method and rabbit brain as a source of thrombokinase, the average plasma clotting time was determined in different species. The values obtained were:—horses 26·6 sec.; cattle 22·4 sec.; calves 22·9 sec.; sheep 17·3 sec.; and pigs 16·1 sec. It is concluded that the plasma clotting time for each species under normal conditions is practically constant.

—J. A. NICHOLSON.

WHITE, I. G. (1951.) **A comparison of blood constituents in identical and fraternal twin calves.**—*Aust. vet. J.* **27.** 1–7. [Author's summary modified.] **3043**

A study was made of plasma chlorides, erythrocyte fragility and erythrocyte counts, in four pairs of identical female twin calves and four pairs of fraternal twin calves, blood samples being obtained on four occasions from each animal.

Significant between-pair and also day-to-day variation was observed in the blood constituents in both the identical and fraternal subgroups, while overall differences within pairs were significant in only one case (erythrocyte fragility in a fraternal pair). This absence of significant within-pair differences arose mainly because the animals did not behave similarly on different days of testing.

The observed within-pair differences in fraternal twins were very similar to those in identical twins; sometimes exceeding and sometimes falling short of them. It is concluded that identical twin calves have no advantage over fraternal twins in experiments involving these blood constituents and that plasma chloride estimation, erythrocyte fragility tests and erythrocyte counts do not present a basis for the objective diagnosis of zygocity in twin calves.

A method for the quantitative estimation of blood fragility is described, and the inherent variation between haemocytometer sets has been checked and found not to be significant.

MEADE, B. W. & SMITH, M. J. H. (1951.) **Salicylate, gentisate, and circulating eosinophils.**—*Lancet.* **260.** 773–774. [Authors' summary copied *verbatim*.] **3044**

The effect of single doses of sodium salicylate and sodium gentisate on the circulating eosinophils has been studied in normal healthy subjects. No significant depression was observed with plasma-salicylate concentrations up to 38 mg. per 100 ml. and plasma-gentisate [a salt of gentisic acid, 2, 5-dihydroxy-benzoic acid, a constituent of gentian] concentrations up to 35 mg. per 100 ml.

ARRHENIUS, S. (1950.) **The ester hydrolysis and extraction of bovine urinary steroids.**—*Acta endocrinol.* **4.** 192–204. [In English. Abst. from author's summary.] **3045**

Details are given for the preparation of a dry non-phenolic steroid extract of cows' urine.

CHRISTENSEN, G. C. (1950.) **Canine renal circulation.**—*Thesis, Cornell.* pp. 58. **3046**

The author has made a careful and detailed study of the renal circulation in the dog. The

text is amplified with excellent illustrations. Neoprene latex was found to be the most suitable injection material.—H. L. GILMAN.

ROCHE, J. & DESRUISSEAUX, G. (1950.) Sur l'iode ovarien et les modifications de son taux au cours de la gestation chez la vache. **[Iodine content of the ovary in the pregnant cow.]**—*C. R. Soc. Biol., Paris.* **144.** 1179–1181. **3047**

The ovaries of cattle were assayed for iodine. The average in non-pregnant cows was 9·6 parts of iodine per million of fresh ovary. The ovaries of pregnant cows contained about 50% less, that with the corpus luteum averaging 4·67 p.p.m. and the other 4·91 p.p.m. The corpus luteum was virtually devoid of iodine. The authors concluded that the iodine in the ovary is involved in follicular activity.—F. B. LEECH.

DRIEUX, H. & THIERY, G. (1949.) Placentation chez les mammifères domestiques. II. Placenta des suidés. **[The placenta of the sow.]**—*Rec. Méd. vét.* **125.** 437–455. **3048**

The implantation of the ovum and the early development of the placenta of the sow are briefly described. Though diffuse like that of the mare, the sow's placenta differs in being incomplete at the extremities, and in consisting of distinct allanto-chorionic and chorio-amniotic zones. The histological structure of these zones and their elaboration during pregnancy are described in some detail but no arguments are adduced to explain their impermeability to maternal antibodies.—J. T. DONE.

MOULE, G. R. & KNAPP, B. (1950.) **Observations on intra-testicular temperatures of Merino rams.**—*Aust. J. agric. Res.* **1.** 456–464. [Authors' summary copied *verbatim.*] **3049**

A technique for determining intratesticular temperatures of Merino rams is described. Some results of observations on intratesticular temperatures of rams are given. These show increases associated with exposure to high atmospheric temperatures, to rises in rectal temperature, and to wrapping of the scrotum.

ZILVERSMIT, D. B., STERN, T. N. & OVERMAN, R. R. (1951.) **Effect of adrenal hormones on blood phospholipides.**—*Amer. J. Physiol.* **164.** 31–34. [Authors' summary copied *verbatim.*] **3050**

A marked decrease in plasma phospholipide concentration, total circulating plasma phospholipide and phospholipide plasma-protein ratio was found in bilaterally adrenalectomized dogs maintained on DCA [desoxycorticosterone acetate in sesame oil]. Dogs in adrenal insufficiency did not show consistent changes in plasma phospholipides. Several possible mechanisms of the observed disturbance of lipide metabolism are discussed.

HENNINGS, H. (1950.) **The whale hypophysis with special reference to its ACTH content.**—*Acta Endocrinol.* **5.** 376–386. [In English. Author's summary slightly modified.] **3051**

A survey is given of previous investigations on the anatomy of the whale hypophysis and its hormone content. A report of H.'s own investigations on 56 anterior pituitary lobes from fin and blue whales and their ACTH content is given.

In spite of the surprisingly small size of the whale pituitary gland in proportion to the enormous weight of these animals, the anterior lobe of the whale pituitary gland should prove valuable material for the production of ACTH for scientific work and possibly also for clinical use.

MAQSOOD, M. (1950.) **Role of the thyroid in sexual development in the male.** [Correspondence.]—*Nature, Lond.* **166.** 692. **3052**

Mild physiological hyperthyroidism was found to stimulate spermatogenesis as well as the activity of the testicular interstitial cells in mice, rabbits and rams, whereas thyroidectomy or the administration of thiouracil was followed by reduced spermatogenesis and degeneration of the seminiferous tubules. Thyroxin administration also appeared to increase the sex drive and libido in rabbits and prevented the seasonal variation in sexual desire in young rams. The mechanism involved is probably of a complex nature.—J. A. NICHOLSON.

ENGFELDT, B. (1950.) **Studies on parathyroidal function in relation to hormonal influences and dietetic conditions.**—*Acta endocrinol.* Suppl. No. 6. pp. 118. [In English. Author's summary modified.] **3053**

The present study, based on experiments with animals, comprises combined morphological, blood-chemical, and urine-chemical investigations carried out, with the object of gaining information as to the factors governing the parathyroidal function. The size of the parathyroids was estimated in albino rats of different ages. The ratio, cytoplasm to nucleus, and the nuclear surface were determined for normal animals of different age groups.

The blood phosphorus, blood calcium and plasma protein rates were estimated in normal animals, and the amount of urine per 24 hours and the amount of phosphorus excreted were recorded. The above observations were made

on pituitary treated and hypophysectomized animals. The ratio, cytoplasm to nucleus, and, further, the nuclear surface were estimated at different functional states of the parathyroids, and were found to show characteristic changes associated with over- and under-activity of the organ. The cytological changes appear a considerable time before a change in the size of the organ can be demonstrated.

E. concluded that no parathyrotropic factor in the ordinary sense is found in the anterior pituitary lobe. The pituitary gland does affect the parathyroidal function, however, but this action is indirect, through the blood. The pituitary gland has a phosphorus-increasing action which is confined to the anterior lobe.

Administration of growth hormone to hypophysectomized rats entails a rise in the blood phosphorus to normal or beyond and morphological signs of normal or increased parathyroidal function. ACTH and adrenal cortex extract (Eschatin) which were given to hypophysectomized animals failed to prevent the morphological changes which develop in the parathyroids after hypophysectomy and did not restore the low blood phosphorus. Hypophysis-parathyroidectomy leads to an increase in blood phosphorus, which initially is fairly considerable but not so high as after parathyroidectomy alone. The blood phosphorus level of hypophysis-parathyroidectomized rats shows a gradual tendency to drop, but does not attain a normal rate. Adrenalectomy entails elevation of the blood phosphorus level.

DE GIROLAMO, A. (1950.) Sull'anatomia della lingua di bufalo. **[Anatomy of the tongue of the buffalo.]**—*Riv. Med. Vet. Zootec.* **2.** 315–331. [English, French and German summaries.] **3054**

The author studied the anatomy and histology of the tongue of the buffalo, comparing it with that of the ox. There is a bibliography of 20 references.

BENEDETTI, F. (1948.) Indagini circa le differenze di resistenza del corno di color chiaro rispetto a quello di colore scuro nello zoccolo degli equini. **[The difference in the strength of light and dark hooves in horses.]**—*Ann. Fac. Med. Vet., Pisa.* **1.** 93–106. [English and French summaries. Abst. from English summary.] **3055**

B. discussed the belief that white hooves are less strong than black ones. Determinations of hygroscopic and specific weight, the breaking coefficient, rate of wear, and sulphur and ash content were made.

The differences, although constant, were not sufficiently marked to indicate whether there was any real difference in the respective strength of the two types of hoof.

See also absts. **2825** (amino-acids in tuberculin protein fractions); **3088** (implantation of stilboestrol for lactation in goats); **3120** (book, animal physiology); **3121** (book, blood-clotting); **3122** (book, adrenal cortex).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

MEARA, P. J. (1950.) **Biological testing of milk for tuberculosis and brucellosis.**—*S. Afr. med. J.* **24.** 593–595. [Abst. from author's summary.] **3056**

Of a total of 1,174 herd milk samples from the Johannesburg area submitted to the g. pig inoculation test 1·02% contained tubercle bacilli. 16·1% of 217 samples of milk similarly tested for *Brucella abortus* gave positive reactions.

CLABORN, H. V., BECKMAN, H. F. & WELLS, R. W. (1950.) **Contamination of milk from DDT sprays applied to dairy barns.**—*J. econ. Ent.* **43.** 723–724. [Authors' summary copied *verbatim*.] **3057**

A study was made to determine the source of milk contamination when dairy barns were sprayed with 2·5 per cent of DDT. Three experiments showed (1) that the insecticide was actually secreted in the milk and did not get into it after milking due to mishandling of the milk or milking equipment, (2) that no contamination resulted from inhalation of the insecticide by the cows, and (3) the spray residues left on the feed trough resulted in the secretion of the insecticide in the milk. Contamination of milk did not occur when troughs were completely covered during the spraying or when the troughs were washed after the spraying.

HARRIS, H. J., HANSENS, E. J. & ALEXANDER, C. C. (1950.) **Determination of DDT in milk produced in barns sprayed with DDT insecticides.**—*Agric. Chem.* **5.** 51–52. [Abst. in *Rev. appl. Ent.* Ser. B. **39.** 8. (1951), slightly modified.] **3058**

In view of a report that DDT could be found in milk as a result of the application of the insecticide to dairy barns, and of a recommendation by the United States Department of Agriculture that the use of DDT sprays for controlling insects in dairy barns should be

discontinued, an investigation on the chemical composition of milk from cows housed in barns sprayed with DDT was made. Four dairy barns were sprayed with DDT suspensions; the cows were removed during the applications, food troughs and drinking fountains were protected. Three of the barns had also been sprayed with DDT in 1948. A visible blue colour, which would positively indicate the presence of DDT in the analytical method used, was not found in any of the samples taken twice before and five times after application. Seven of the 28 samples contained 0·03–0·05 parts DDT per million. One of them was taken before spraying and came from a barn that had been sprayed the previous year. Four of the others came from the barn in which the least sanitary milk-handling methods were followed. It is concluded that when good dairy practices are followed, barn sprays applied with simple precautions are not likely to result in milk contamination.

HÄNNI, H. (1949.) Untersuchung über das Vorkommen von Alkohol in Milch nach Verfütterung silierter Obsttrester. **[Tests for the presence of alcohol in milk following feeding with silaged pomace.]**—*Mitt. Lebensm. Hyg., Bern.* **40.** 119–124. **3059**

Because of the increased use of pomace (silaged apple pulp, the residue from the early stages of the use of apples for making cider and other drinks), as feeding material for cattle in Switzerland, H. tested the alcohol content of the milk of cows to which it had been fed.

Cows were given 6–9 kg. of this pulp containing up to 2·2% by weight of alcohol per supplement as part of their diet. There were no traces of alcohol in milk samples tested 30 min. to two and a half hours after feeding. It is stated that unless pomace was fed in excess of 10 kg. per day per cow there was no likelihood of appreciable amounts of alcohol being present in the milk.

Cows were given 0·5 l. of approximately 50% brandy mixed with their food and 30 min. to one hour after ingestion, alcohol was detectable in the milk in amounts of 0·53–1·42 per thousand by volume.—E. G.

AASER, C. S. (1948.) Noen undersøkelser over kjøtt, blod, fett og fisk. **[The examination of meat, blood, fat and fish.]**—*Maanedsskr. Dyrlaeg.* **60.** 237–259. **3060**

A summary of experience in Norway mainly during the war years, dealing with the value of different methods used for examining meat, blood, fat and fish, with special reference to the determination of source of origin, freshness and illegal admixture of adulterants.—P. SCHAMBYE.

BERARDUCCI, C. (1950.) Risanamento dello sgombro sott'olio inquinato da Stafilococco enterotossico. Opportune norme per la sterilizzazione dei pesci scatolati. **[*Staphylococcus enterotoxicus* in canned mackerel.]**—*Zooprofilassi.* **5.** 291–300. [Abst. from English summary.] **3061**

An account of work to ascertain if staphylococcus enterotoxin could develop in canned mackerel.

I. GILLESPIE, J. M., SCOTT, W. J. & VICKERY, J. R. (1950.) **Studies in the preservation of shell eggs. II. The incidence of bacterial rotting in unwashed eggs and in eggs washed by hand.**—*Aust. J. appl. Sci.* **1.** 215–223. [Authors' summary modified.] **3062**

II. GILLESPIE, J. M., SCOTT, W. J. & VICKERY, J. R. (1950.) **Studies in the preservation of shell eggs. III. The storage of machine-washed eggs.**—*Ibid.* 313–329. [Authors' summary copied *verbatim*.] **3063**

I. The experimental procedure adopted for testing the effects of cleaning on the keeping quality of shell eggs is described in detail. The eggs were held in cold storage for two to three months and the final examination made after a further three weeks at approximately 20° C.

For unwashed eggs the mean percentage of rots was 1·06 for 3101 dozen eggs tested in 168 experiments. The range was from 0·0 to 15·8 per cent., with the median 0·5 per cent. Eggs which were soiled kept almost as well as naturally clean eggs.

With eggs washed by a number of hand-cleaning procedures the mean percentage of rots was 2·71 for 1141 dozen eggs tested in 67 experiments. The range was from 0·0 to 28·4 per cent., with the median 0·4 per cent. The greater mean wastage in hand-washed eggs is attributable to relatively heavy wastage in approximately 10 per cent. of the experiments.

II. The three principal types of egg-washing machines used on Australian poultry farms are described. Cleaning on each type of machine causes a greater amount of bacterial rotting than does washing by hand. For roller machines the mean percentage of rots was 20·7 for 2,367 dozen eggs tested in 145 experiments, the median value being 17·5 per cent. For 47 experiments with tape machines the mean percentage rotting for 791 dozen eggs was 4·05, with the median value 2·3 per cent. For 14 experiments with brush machines the mean percentage of rots was 7.7.

The amount of rotting depended on the machine on which the eggs were cleaned, and was independent of the farm of origin of the eggs and of the extent to which the eggs were soiled when collected. The harmful effects of the machines were due to the large populations of rot-producing bacteria which they harboured, some of these organisms being transferred to the shells of the eggs during cleaning. The deleterious effects of machine cleaning were eliminated by cleaning in the presence of strong disinfectants, and augmented by inoculating the machines with rot-producing bacteria.

TASSI, L. & IGNESTI, E. (1951.) Episodi di intossicazione da enterotossina stafilococcica per consumo di " soppressata " di carne suina e loro profilassi. **[Staphylococcal food poisoning in man after ingestion of pork sausage.]**—*Zooprofilassi.* **6.** 143–153. [English summary.] **3064**

From Nov. 1949 to Oct. 1950, 13 instances of food poisoning were reported in Florence, traceable to the ingestion of a type of pork sausage called " soppressata "; 17 persons were affected. *Staphylococcus aureus* was isolated from four of the samples and the cultures from three of them produced enterotoxins.

ZWART, S. G. (1950.) De organisatie van de uitvoering der vleeskeuringswet s 1919 No. 524. **[The Dutch meat inspection law No. 524 of 1919.]**—*Tijdschr. Diergeneesk.* **75.** 426–434. **3065**

Z. discussed meat inspection regulations in Holland, with special reference to the staffing of the several administrative districts, pointing out differences both as to the types of staff that undertake the work and the organization available, including reference to the provision of abbatoirs, and the proportion of whole time and of part-time veterinarians who deal with the work.—W. TATHAM THOMPSON.

MULLIGAN, H. W. [Undated.] **International scientific committee for trypanosomiasis research. The West African Institute for trypanosomiasis research. A review of current and projected activities.**—*Bur. interafr. Tsetse.* B.P.I.T.T. No. 111/0. pp. 19. [Mimeographed.] **3066**

The work and projects of the four sections of the Institute (Entomology, Epidemiology, Protozoology and Veterinary) are outlined. The work in Entomology is tsetse ecology and forestry requirements. The epidemiology section besides dealing with sociology and vital statistics will work on trypanocides. Therapeutic trials and immunization studies will be undertaken by the Protozoology and Veterinary sections. Work is progressing on diagnosis, particularly of cryptic infections. The Veterinary section besides dealing with pathology in animals, will investigate economic losses and the prophylactic and curative efficacy of drugs.

—JAS. G. O'SULLIVAN.

WILKINS, J. H. (1950.) **The veterinary and remount services of the German Army.**—*J.R. Army vet. Cps.* **21.** 12–19. **3067**

The organization, size and special duties of this service are described. An interesting account is given of the management of horses on the Russian Front during the second World War. Anti-frost and snow measures are discussed. Shortage of fodder, especially grain, was marked and deaths from starvation occurred. Mange was common and was treated with sulphur dioxide in gas chambers. Other diseases given special mention are: glanders (12 cases in $3\frac{1}{2}$ years), influenza, strangles, rabies (very few cases) and " mud fever " (resulting from the feeding of clover, lupins and buckwheat).

—E. EDEN.

BEREGOVOI, L. (1949.) **[Work of the Vorotynsk veterinary area.]**—*Veterinariya, Moscow.* **26.** No. 11. pp. 55–56. **3068**

This veterinary area covers 24 farms within a radius of 30 km. The four veterinarians in charge plan a monthly programme of work for each farm, including the type of fodder required, its harvesting, storage and feeding. The staff are instructed in the proper care of animals and constant supervision is exercised, faults being analysed and the lessons thus learned passed on to other farms of the unit. Annual routine work includes immunization against glanders, TB. in cattle, anthrax, swine fever, *Salmonella paratyphi* infection in calves, blood tests for brucellosis and allergy tests in sheep and goats. As a result the incidence of disease and sterility have now been largely eliminated. The number of animals has greatly increased.

The success of this veterinary unit is attributed to systematic planning and to education and supervision of the farm staffs.—F. A. A.

See also abstr. **3129 (book, milk hygiene); 3130 (book, food inspection).**

LIVESTOCK HYGIENE

ITTNER, N. R. & KELLY, C. F. (1951.) **Cattle shades.**—*J. Anim. Sci.* **10.** 184–194. [Abst. from authors' summary.] **3069**

The principal function of shade is to reduce the heat intake of the animals by absorption of radiant energy from the sun. In the order of preference and well-being of the cattle, the shades can be ranked as follows: (1) desert or evaporative cooler; (2) wetted burlap or galvanized iron roofs; (3) double roofed shade without spray cooling; (4) hay covered shades, 12, 10, and 8 feet high, the highest shade being the best; and (5) plain galvanized iron roof and louvered shades.

The evaporative cooler gave the animals some relief from high temperatures and reduced the radiation heat load considerably, but the cost was high. The galvanized iron shade reached a higher temperature and re-radiated more heat than any other. A layer of hay over galvanized iron reduced the amount of radiant heat considerably.

Animals under high shades (10 to 12 feet high) received less radiant heat than those under low shades (7 feet high).

For practical use in areas of low rainfall, the cheaper hay-covered shades are adequate. Since the hay becomes heavy when wet by rain, the framework must be fairly sturdy. In areas with heavier rainfall, aluminium or galvanized iron shades over a layer of hay will provide cool shade in the summer and protection from rain in winter.

See also abst. **2964 (subterranean clover).**

SWIERSTRA, D. (1950.) Het compostprobleem met betrekking tot dierziekten. **[Compost and animal diseases.]**—*Tijdschr. Diergeneesk.* **75.** 297–300. **3070**

A general account of the controversial matters relating to the use of compost rather than or as an adjunct to the use of the chemical artificial manures (N.P.K. manures). The claims that composting can improve the health of livestock are dealt with.—W. TATHAM THOMPSON.

REPRODUCTION AND REPRODUCTIVE DISORDERS

STEGENGA, T. (1950.) De kunstmatige inseminatie in 1949. **[Artifical insemination in Holland in 1949.]**—*Maandbl. Landb. voorl. d.n.s.t.* **7.** 317–334. **3071**

In 1949 in the Netherlands artificial insemination was performed on 244,148 cows (12·4% of all female cattle above one year). 209,214 cows conceived (85·69%), 48·74% of them after the first insemination.—C. A. VAN DORSSEN.

COLLINS, W. J., BRATTON, R. W. & HENDERSON, C. R. (1951.) **The relationship of semen production to sexual excitement of dairy bulls.**—*J. Dairy Sci.* **34.** 224–227. [Authors' summary copied *verbatim*.] **3072**

In two experiments with 11 bulls each, restraining the bulls to induce sexual excitement was accompanied by highly significant ($P < 0.01$) increases in semen volume per ejaculate and in numbers of spermatozoa per milliliter of semen. The number of motile spermatozoa per ejaculate was 41 per cent greater ($P < 0.01$). These results emphasize the practical importance of procedures designed to induce and control sexual excitement in dairy bulls at the time of semen collection.

KRISHNA RAO, C. (1950.) **Studies on semen and fertility in the bull.**—*Indian J. Dairy Sci.* **3.** 75–84. **3073**

Five Guernsey and seven Friesian bulls were studied. Good quality semen may be used for a period of five days if properly handled. Evidence is presented which suggests that fertility may be an inherited character.—M. C.

KAMPSCHMIDT, R. F., MAYER, D. T., HERMAN, H. A. & DICKERSON, G. E. (1951.) **Viability of bull spermatozoa as influenced by electrolyte concentration, buffer efficiency and added glucose in storage media.**—*J. Dairy Sci.* **34.** 45–51. [Authors' summary copied *verbatim*.] **3074**

A reduction in the quantity of sodium-containing buffer salts in a diluting medium promoted increased survival of bull spermatozoa during storage. Sugar solutions, especially solutions of metabolizable sugars, were most satisfactory for replacing solutions of buffer salts in the medium. However, reducing the proportion of buffer salts in the medium was beneficial only if a sufficient quantity remained to maintain an optimum pH level during the entire storage period.

A diluting medium composed of one part egg yolk and five parts of an isosmotic mixture of one part $NaHCO_3$ solution (1·3 per cent.) plus four parts glucose solution (5 per cent) gave better results than any diluter studied as a storage medium for bull spermatozoa.

It has been suggested that a motility rating may not be an accurate criterion of spermatozoan survival during the late stages of a prolonged storage period in the absence of adequate amounts of buffer substances.

JOHNSTON, J. E. & MIXNER, J. P. (1951.) **Effects of added hyaluronidase and hyaluronic acid on the motility of bull spermatozoa.**—*J. Dairy Sci.* **34.** 116–118. [Authors' summary copied *verbatim*.] **3075**

Amounts of hyaluronidase up to 40 mg. per milliliter of diluted bull semen did not affect significantly the motility characteristics of the spermatozoa after storage at 5° C. for 5- and 10-day periods. Under similar storage conditions, amounts of hyaluronic acid greater than 8 mg. per milliliter of diluted bull semen caused a significant reduction in the percentage of motile spermatozoa.

KAMPSCHMIDT, R. F., MAYER, D. T., HERMAN, H. A. & DICKERSON, G. E. (1951.) **Sedimentation of spermatozoa and settling of diluter solids and their effects upon survival of spermatozoa during storage.**—*J. Dairy. Sci.* **34.** 21–27. [Abst. from authors' summary.] **3076**

Minor changes in procedure of preparing and mixing egg yolk media were found to have marked effect on the settling of egg yolk and semen plasma solids. Visible settling during storage or shipping of a diluted specimen of bull semen apparently has no influence on the duration of motility or survival of the spermatozoa. The sedimentation rate of the spermatozoa in most of the common semen-diluting media is very rapid under storage conditions. Apparently, at storage temperatures, the minute spermatozoa are behaving as inert particles, since the sedimentation rates of live and dead cells were almost identical. A diluted semen specimen should be thoroughly mixed prior to evaluation by the usual techniques or to utilization for artificial insemination. The rapid sedimentation of the spermatozoa during storage does not affect their survival.

SALISBURY, G. W. & VANDEMARK, N. L. (1951.) **The effect of cervical, uterine and cornual insemination on fertility of the dairy cow.**—*J. Dairy Sci.* **34.** 68–74. [Authors' summary copied *verbatim*.] **3077**

The results of three different experiments, one involving the insemination of 6,600 cows with semen from 16 Holstein-Friesian bulls for the first time during the service period showed that, on a non-return to heat basis of assaying conception, equally satisfactory fertility was obtained from deposition of the diluted semen into the cervix, the body of the uterus or the uterine horns, when the inseminating tube was guided into the reproductive tract by the rectal technique. These results are in accord with recent observations on the rate and mode of spermatozoa travel in the cow and argue against the advisability of intra-uterine insemination when equally effective results may be obtained by a simpler and safer technique of intra-cervical insemination.

MARION, G. B., SMITH, V. R., WILEY, T. E. & BARRETT, G. R. (1950.) **The effect of sterile copulation on time of ovulation in dairy heifers.**—*J. Dairy Sci.* **33.** 885–889. [Abst. from authors' summary.] **3078**

The effect of sterile copulation on the time of ovulation was observed on 25 heifers representing four dairy breeds. The heifers ovulated, on an average, at 7·7 hours following the end of oestrus when served by a vasectomized bull, as compared to 9·9 hours when not served. The average length of non-served oestrous periods was 21·1 hours, compared with 18·2 hours for oestrous periods during which copulation occurred. Sterile copulation had no effect on the length of the subsequent oestrous cycle.

LOPYRIN, A. I., LOGINOVA, N. V. & KARPOV, P. L. (1950.) **[Experiment in interbreed transference of ova in sheep.]**—*Sovetsk. Zooteh.* **8.** 50–64. [Abst. from abst. in *Anim. Breed. Abstr.* **18.** 415–416. (1950.)] **3079**

Fertilized ova of Merino, Karakul and Chuntuk sheep were transferred to ewes of the breeds not producing the ova. Ova fertilized by Merino × Chuntuk matings were also transferred to Karakul ewes. No details of technique are given. Ninety ewes were used, but only eight lambs were produced, seven from ova fertilized before transplanting and one from ova fertilized after transplanting. The pregnancies were normal. The characteristics and development of the lambs are described.

HERRICK, J. B. (1950.) **Artificial insemination of swine.**—*Iowa St. Coll. Vet.* **12.** 18–23; & 70–76. **3080**

H. discussed existing literature on various aspects of the subject, viz. boar semen studies, storage of semen, collection of semen and insemination techniques. Various types of artificial vagina are described. The method adopted by H. for determining fertility in the boar is outlined. He considers that, while satisfactory artificial insemination techniques are available, more information is needed on the possible effect of this method of breeding on conception rates, litter size and vigour.—D. LUKE.

WIGGINS, E. L., GRUMMER, R. H. & CASIDA, L. E. (1951.) **Minimal volume of semen and number of sperm for fertility in artificial insemination of swine.**—*J. Anim. Sci.* **10.** 138–143. [Authors' summary slightly modified.] **3081**

Forty-six gilts were inseminated with quantities of fresh semen ranging from 0·01 to 20 cc. diluted to a total volume of 50 cc. in a calcium-free Ringer phosphate diluent and 40 sows were inseminated with quantities of 1 to 50 cc. of fresh semen diluted to either 50 or 250 cc. In gilts some fertility (29%) was obtained with 0·1 cc. semen and an average fertility of 91% was obtained with 20 cc. semen diluted to 50 cc. In sows fertility was almost as high (42%) with 1 cc. of semen diluted to 50 cc. as it was with 20 cc. of semen diluted to either 50 or 250 cc. (43% in each case). The average fertility per sow was 67% when 50 cc. of semen diluted to 250 cc. was used.

Maximum-possible average litter sizes were estimated at 5·7 to 11·8 pigs in gilts and from 4·5 to 13·4 pigs in sows inseminated with different quantities of semen. Sows ovulated 4·6 more ova, had 11·8 inch longer uterine horns and stayed in heat slightly longer than gilts.

LIBERT, O. (1950.) Contribution à l'étude des hormones stéroïdes dérivées du pregnane chez la lapine. I. Métabolisme de la progestérone et de la desoxycorticostérone d'origine endogène. **[Steroid hormones in rabbit does. I. Progesterone and desoxycorticosterone metabolism of endogenous origin.]**—*Acta endocrinol.* **5.** 1–23. [In French. English summary, slightly modified.] **3082**

LIBERT, O. (1950.) Contribution à l'étude des hormones stéroïdes dérivées du pregnane chez la lapine. II. Métabolisme de la progestérone et de la desoxycorticostérone d'origine exogène. **[Steroid hormones in rabbit does. II. Progesterone and desoxycorticosterone metabolism of exogenous origin.]**—*Acta endocrinol.* **5.** 24–42. [In French. English summary, copied *verbatim*.] **3083**

I. Metabolism of endogenous progesterone and desoxycorticosterone was studied in female rabbits by the method of Jayle for "butylo-soluble glucuronides" determination. The results show that: Butylo-soluble glucuronides are normal urinary metabolites in this animal. These glucuronides are in correlation with luteal and adrenocortical activity. Their determination in various physiological cases gives the amount of normal progesterone and desoxycorticosterone metabolites. Oestrogens increase the amount of urinary glucuronides. This increase is not due to oestriol-glucuronide excretion, but probably to a stimulation of the anterior pituitary corticotrophic action.

II. Progesterone and desoxycorticosterone were injected to 53 adult female rabbits, before or after ovariectomy and hysterectomy and to 3 males. The "butylo-soluble glucuronides" were measured in each case, before and during treatment, by the method of Jayle *et al.* Glucuronide excretion is always increased by progesterone if the uterus shows the progestational response. After desoxycorticosterone administration there is an increase in glucuronide excretion, even after hysterectomy. Oestrogens increase progesterone and desoxycorticosterone metabolites excretion. When progesterone is given in pellets subcutaneously, almost the whole of it is metabolized in urinary glucuronides. When the implantation is made in the gastro-splenic mesentery progesterone is inactivated by the liver. There is no increase in urinary glucuronides and no progestational response of the uterus.

ZINSSER, H. H., ZINSSER, A. D. & STOREY, C. M. (1950.) **Effect of chorionic gonadotropin on the transitory zone of the mouse adrenal.**—*Arch Path.* **50.** 606–611. [Authors' summary copied *verbatim*.] **3084**

The transitory zone of the mouse adrenal has been studied in mice given injections of chorionic gonadotropin and contrasted with that of a group of controls given injections of non-specific protein and a group of controls which received no injections. In the female the response to the injection of chorionic gonadotropin is characterized by early rapid vascularization and vacuolation of the transitory zone, followed by long persistence of isolated cells. In the male the response is somewhat more gradual but by the end of 60 days is more nearly complete than that in the female. The possible explanations for the observed results are discussed with particular reference to extragonadal sources of androgen, and exhaustion atrophy is suggested as an alternative mechanism for the involutional process seen.

REKERS, R. E. (1951.) **Induced pregnancy in a mammalian host following severe total body X-irradiation.**—*J. Lab. clin. Med.* **37.** 331–341. [Author's summary copied *verbatim*.] **3085**

Pregnancy was readily and naturally induced in dogs after large doses of total body irradiation of LD_{90} or more. A full-term, viable pup was whelped from the dam receiving the largest dose of irradiation. A second dam aborted following a pulmonary infection. The

third dam delivered three living pups, one of which was underdeveloped and succumbed. This dam and the two offspring have remained well. During the gestation period of fifty days or more there were normal gross alimentations, constant weights, and varying degrees of depression of the peripheral blood elements without bacterial invasion of the blood stream or intravascular hemolysis. After whelping or aborting there was a rapid decline in the physical condition of two of the three dams, subsequent death, and the findings of sepsis and degeneration including the hemopoietic tissues. From the data presented it does not appear that fetal tissue provided an active hemopoietic center for the irradiated dam. The question, however, of the protective action of embryonic tissue for maintaining resistance to infections and of benefit from fetal endocrine or enzyme systems is raised.

See also absts. **2814** (vibrionic abortion in cattle); **2842** (role of cockerel in pullorum disease); **2844–2852** (brucellosis); **2952** (venereal tumours in dogs); **2976** (oestrogenic effect of subterranean clover); **2982** (lambing behaviour of ewes); **3047** (iodine content of ovary in pregnant cows); **3048** (placenta of sows); **3049–3050** (intratesticular temperatures in rams); **3052** (sexual development).

ZOOTECHNY

PHILLIPS, R. W. [Edited by.] (1950.) **Improving livestock under tropical and subtropical conditions. Report of the F.A.O. meeting on livestock breeding under tropical and subtropical conditions, held in Lucknow, U.P., India, 13–22 February 1950.**—*Food & Agric. Org. U.N. Wash.* F.A.O. Development Paper No. 6. Agriculture. pp. 55 [Mimeographed.] **3086**

The meeting was attended by delegates from a large number of tropical and subtropical countries and from European governments having interests in tropical lands as well as by representatives of F.A.O. The discussions centred round the applications of genetics and physiology to the improvement of livestock in the Tropics. Reports were presented by delegates dealing with the conditions and methods of their respective countries. Satisfactory tests for measuring performance of draught cattle are not yet available. The striking variation in susceptibility to rinderpest of different breeds of buffaloes was emphasized; those of Egypt are immune to natural infection which is not the case in those from Asian countries.

Many delegates stated that as a result of importation of European breeds there was danger of losing valuable local breeds which were better adapted to local conditions. Steps to preserve such breeds are being taken in India, Burma, and Ceylon. Of the Pakistan breeds which have been imported into other Asian countries the Sindhi seems to have proved to be the most generally adaptable. Results obtained by importation of various breeds of cattle, sheep and goats into many tropical countries were reported.

Experimental studies on the reactions of cattle to heat and humidity are being made in the U.S.A., in Australia, in Scotland and in Costa Rica and similar studies are contemplated in Ceylon, Egypt and India. Programmes designed to spread new knowledge were discussed.

In most tropical and subtropical areas disease is stated to be the major limiting factor in developing livestock. In the opinion of the delegates, essentials to the success of any scheme of improvement were (1) Incentive to the stock owner by means of reasonable remuneration for his improved stock (2) Continuity of policy (3) Long term planning.—M. C.

BOWEN, C. V. (1950.) **An improved syringe hydrometer [for testing cattle-dips].**—*U.S. Dept. Agric.* ET-290. pp. 3. **3087**

A description of a hydrometer in which the glass tube of the syringe is replaced by a plastic wall to lessen the danger of breakage.

—G. B. S. HEATH.

ROY, A., BHATTACHARYA, S., LUKTUKE, S. N. & BHATTACHARYA, P. (1950.) **Effect of implantation and subsequent withdrawal of stilboestrol tablets combined with iodoprotein (protamone) feeding on induced lactation in goats.**—*Indian J. Dairy Sci.* **3.** 68–74. **3088**

There was considerable individual variation in response to implantation and withdrawal. Feeding iodinated protein augmented milk secretion in goats which had responded to stilboestrol.—M. C.

MCCLYMONT, G. L., GREAVES, H. & DUNCAN, D. C. (1951.) **No response in egg production to feeding thyroprotein.** *Agric. Gaz. N.S.W.* **62.** 46. **3089**

Twelve series, each of 10 second-year White Leghorn hens were fed on a normal egg-producing ration. The hens in six of the pens received in addition, a supplement of 20 g. thyroprotein (" protamone ") incorporated in each 100 lb. of mash. The experiment continued for 166 days, from December to May, which is the period in Australia when egg production normally declines from a peak to a very low level. The addition of the thyroprotein gave no

significant response in food consumption, body weight or egg production.—D. A. Gill.

Hansard, S. L., Plumlee, M. P., Hobbs, C. S. & Comar, C. L. (1951.) **The design and operation of metabolism units for nutritional studies with swine.**—*J. Anim. Sci.* **10.** 88–96. [Authors' summary slightly modified.] **3090**

A description of the design and operation of adjustable metabolism units which are adaptable for barrows or gilts. The width and length of the stall may be readily adjusted to the size of the animal. The animal is successfully restricted to the desired area by means of these adjustments and a live wire arrangement from an electric fence unit. A drawer-type combination feed box and watering unit attached below floor level minimizes contamination of excreta with feed and water. A removable panel in one side of the stand and a swine immobilizer unit attachment facilitates bleeding or dosing of the animal without the necessity of removing it from the stall.

See also absts. **2983** and **3025** (dips); **3124–3126** (books, zootechny).

TECHNIQUE AND APPARATUS

Pearce, T. W. & Powell, E. O. (1951.) **New techniques for the study of growing micro-organisms.**—*J. gen. Microbiol.* **5.** 91–103. [Authors' summary slightly modified.] **3091**

A method is described for the examination of growing micro-organisms by vertical and oblique incident illumination using an illuminator of the "Universal Illuminator" type. A moist chamber has been developed to enable this method to be used for the routine examination of bacterial cultures, and examples are given of both aerobic and anaerobic cultures on the surface of solid nutrient media, preferably containing nigrosine.

This method has also been used for following spore germination of *Bacillus subtilis* in a liquid medium. A method using cellophane as a support for growth is also described. Certain organisms can be grown on cellophane "windows" made in the caps of bijou bottles containing a liquid medium; this apparatus is suitable for the repeated but not continuous examination of young growths.

Sherman, F. G. & Grant, B. M. (1951.) **A culture flask for the estimation of the growth of microorganisms by optical methods.**—*J. Lab. clin. Med.* **37.** 325–326. [Authors' summary copied *verbatim*.] **3092**

A culture flask is described which permits the growth of microorganisms to be followed by optical density determinations. The small size of the flask allows multiple determinations under nearly identical conditions of aeration.

Möller, O. (1951.) **A new method for staining bacterial capsules.**—*Acta path. microbiol. scand.* **28.** 127–131. [In English. Abst. from author's summary.] **3093**

Lead acetate-formalin is used as a fixative and crystal violet as a stain.

Kantorowicz, O. (1951.) **An antibiotic assay tray.**—*J. gen. Microbiol.* **5.** 357–359. **3094**

The construction is described of a tray made of an age-hardening alluminium alloy and toughened glass for use in antibiotic assays on agar media.

Glimstedt, G. & Hakansson, R. (1951.) **Measurement of thickness in various parts of histological sections.** [Correspondence.]—*Nature, Lond.* **167.** 397–398. **3095**

The authors describe the use of a micrometer for measuring the thickness of histological sections; the instrument operates on the section at a pressure equivalent of 200 mg. They give details of the measurements of sections of kidney tissues; the dimensions varied considerably at different parts of a section. The thickness did not agree closely with the scale set on the microtome.—G. M. Glas.

Porter, R. W. & Davenport, H. A. (1951.) **Synthesis of silver proteinates for neurological staining.**—*Stain Tech.* **26.** 1–4. [Abst. from authors' abst.] **3096**

Soluble derivatives of the $AgNO_3$ precipitates of various split protein products were prepared by dissolving the precipitate in a 30–40% aqueous solution of peptone. The split proteins used included pepsin, trypsin and papain digests of albumin, globulin, gelatin, casein, protamine, and tissue proteins from heart, liver and brain; also, an *Escherichia coli* digest of casein, and commercial products. Tested on mammalian nervous tissue, the only silver-protein compounds that stained axis cylinders selectively were derivatives of peptone and bacterially digested casein. It was concluded that the manner of degrading a protein prior to combining it with silver was the most important factor in determining the subsequent staining reaction.

NAUTA, W. J. H. & GYGAX, P. A. (1951.) **Silver impregnation of degenerating axon terminals in the central nervous system: (1) Technic. (2) Chemical notes.**—*Stain Tech.* **26.** 5–11. [Abst. from authors' abst.] **3097**

A description of a silver technique, a modification of the Glees method, designed to avoid the use of tap water and especially suitable for demonstrating terminal degeneration within the central nervous system.

BISHTON, R. L. & ROGERS, G. H. (1950.) **A simple technique for the study of vascular pattern.** [Correspondence.]—*Nature, Lond.* **166.** 230–231. **3098**

The viscera of freshly killed g. pigs are injected *via* the thoracic aorta with 10% colloidal silver iodide. After fixation in formol acetate for 48 hours frozen sections are cut and treated with photographic developer until the injected vessels are seen to blacken. Dehydration, clearing and mounting are normal. On examination the vessels are black against an indefinite general tissue outline.—R. N. SMITH.

PEARL, A., BETHARD, W. F. & JACOBSON, L. O. (1950.) **A lucite syringe shield for protection against irradiation during intravenous administration of beta-emitting radioisotopes.**—*J. Lab. clin. Med.* **36.** 792–794. [Abst. from authors' summary.] **3099**

Attention is called to the danger that the hands of the operator may be over-exposed to beta radiation during therapeutic intravenous administration of β-emitting radioisotopes. Plans for a simple, effective, Lucite syringe shield are given.

TAYLOR, E. M. & MOLONEY, P. J. (1949.) **Sterilization of plastic syringes by formalin vapour.**—*Canad. med. Ass. J.* **61.** 621–622. [Authors' conclusions copied *verbatim.*] **3100**

A detailed description is given of a method of sterilization which depends on the action of formaldehyde *in vacuo*. The method is suitable for the sterilization of certain materials which cannot be sterilized in a steam-pressure autoclave.

VERE-JONES, N. W. (1949.) **Note on a laboratory evaporator.**—*N.Z. J. Sci. Tech.* Sect. B. **31.** No. 3. pp. 1–4. [Author's summary copied *verbatim.*] **3101**

An evaporator, suitable for the vacuum concentration of extracts of biological origin, is described.

ROBINTON, E. D. (1950.) **A rapid method for demonstrating the action of staphylococcus enterotoxin upon** *Rana pipiens.*—*Yale J. Biol. Med.* **23.** 94–98. [Abst. from author's conclusions.] **3102**

R. described a rapid test for the demonstration of staphylococcal enterotoxin, using the frog, *Rana pipiens*. Antiperistalsis of the stomach in decerebrate frogs occurred only when known emetic or enterotoxigenic substances were administered; this reaction occurred in every frog fed with such substances, and such reactions might be obtained within 30 min. after feeding. This period of time may be shortened to one min. with the use of concentrated enterotoxin.

MCLAIN, P. L., RUHE, C. H. W. & KRUSE, T. K. (1951.) **Concurrent estimates of blood volume in animals by bleeding and dye methods.**—*Amer. J. Physiol.* **164.** 611–617. [Authors' summary slightly modified.] **3103**

Blood and plasma volumes in rabbits and dogs were measured by bleeding and dye methods, applied concurrently, and by combinations of these methods. The bleeding method gave the most consistent results, averaging $43 \pm 0{\cdot}8$ ml. of blood/kg. of body weight for rabbits, $62 \pm 1{\cdot}2$ ml./kg. for dogs.

When plotted in the ordinary way, the results of the dye studies exceeded those of the bleeding technique by averages of 67% for rabbits, 44% for dogs.

When full logarithmic plotting was employed, the corresponding mean discrepancies were 33% for rabbits, 32% for dogs.

By combining the bleeding and dye methods, estimates of body hematocrit were obtained. These averaged 6 to 11 volumes per cent lower than the observed arterial hematocrit, depending again on the animal and on the manner of plotting the data. The implications of differences of such magnitude were discussed.

See also absts. 2815 (cultivation of *V. fetus*); 2816 (selective media for *B. anthracis*); 2821 (isolation of tubercle bacilli); 2822 (cultivation of *M. tuberculosis*); 2823 (staining of tubercle bacilli); 2846–2847 (ring test); 2861 (growing of pathogenic fungi in yolk sac); 2862 (preparation of fungous antigens); 2879 (formol-gel test in leishmaniasis); 2895 (multiplication of influenza virus on fertile egg); 2899 (neurotropic virus antigen production); 2915 (Newcastle disease virus propagated in bats); 2932 (laboratory rearing of fowl tick); 2936 (staining of *Diphyllobothrium* ova); 2953–2955 (mouse tumour propagation); 3087 (syringe hydrometer for testing cattle dips); 3127 (book, tissue culture); 3128 (book, laboratory technique).

MISCELLANEOUS

ANON. (1950.) Arbeiten aus der Forschungsanstalt für Tierseuchen Insel Riems bei Greifswald 1950. **[Collected reprints of the Veterinary Research Institute, Isle of Riems, near Greifswald, 1950.]**—Berlin: Arbeitsgemeinschaft medizinischer Verlage GmbH. **3104**

An issue from the Veterinary Research Institute, Isle of Riems, East Germany, formerly directed by Dr. C. Waldmann.

There is a complete list of the publications from the Institute between the years 1920 and 1950. Bound up along with this are reprints of certain of the post-war publications.

EZEKIEL, W. N. (1950.) **Mycological problems in deterioration of military equipment.**—*Trans. N.Y. Acad. Sci.* Ser. II. **12.** 224–229. [Abst. from abst. in *Rev. appl. Mycol.* **30.** 60. (1951.)] **3105**

The article reviews 14 contributions to the knowledge of the role of fungi and moisture in the extensive damage to military materials and equipment so prevalent in the second world war.

Fungal damage may entail visible decomposition and obvious failure of particular materials or parts; degradation of some important property without perceptible decomposition of the affected material or part; and damage to portions of an equipment beyond that supporting growth of the organism. The necessity is explained for clear recognition of general goals, e.g. "funginertness" (a term coined by the writer to designate inherent nutrient inertness) as compared with fungistatic or fungicidal attributes of a material. Research and specification test procedures should be adapted both to the general approach and the particular material under investigation.

MACKINTOSH, G. R. (1950.) **Destruction of wild pigs by poisoned baits.**—*N.Z. J. Agric.* **80.** 259–261. **3106**

Wild pigs, which cause serious economic loss in some hill sheep areas of New Zealand by killing lambs and rooting pastureland have been successfully destroyed by poisoning.

The most effective poison is a mixture of phosphorus and carbon bisulphide in a carcass bait. Strychnine proved practically useless, as the wild pig has a high degree of tolerance to it. The best bait is sheep carcass but goat, horse, cattle, and pig carcasses can be used. Poisoned baits should be placed in infested areas about May, and it is preferable for groups of farmers to carry out operations simultaneously.

—J. T. DONE.

ROSS, O. B., Jr. (1951.) **Use of controls in medical research.**—*J. Amer. med. Ass.* **145.** 72–74. [Abst. from author's summary.] **3107**

One hundred consecutive and unselected current medical journal articles describing some procedure or therapy for diseases were analysed. It was found that in 45% of these articles the investigators made no attempt to compare results of the specific therapy described to those in an untreated control group; 18% used a control that was considered inadequate. A general discussion of the problem is presented.

WEDD, G. D. (1950.) **Some medical aspects of atomic warfare.**—*Publ. Hlth. Lond.* **63.** 170–174. **3108**

This lecture includes a brief discussion of the physical principles on which atomic bombs depend, and also a review of the known and probable effect of irradiation upon the body.

It is emphasized that treatment must be designed with the object of controlling the changes which are inevitable after serious damage, *viz.* shock and general debility, diminution of blood cells, diminution of blood proteins, increased clotting time and multiple haemorrhages, damage to gastro-intestinal mucosa, infection and septicaemia. Suggestions for general and specific treatment of human cases are given, and among the precautions are those relating to syringe needles, which should be employed only under aseptic conditions, and then only when strictly necessary.

—ALASTAIR N. WORDEN.

STRICKLAND, B. A., Jr. & RAFFERTY, J. A. (1951.) **Effects of air transportation on clinical conditions.**—*J. Amer. med. Ass.* **145.** 129–133. [Authors' summary and conclusions modified.] **3109**

The development of air transportation of patients is briefly reviewed. Symptoms were reported in only 7% of evacuation flights. The incidence rate of symptoms is presented for certain clinical conditions which flying might be expected to affect. Symptoms were of a minor nature, and no untoward after-effects caused by air transportation were reported. Findings presented herein support the opinion that almost every patient suitable for transportation by any means is suitable for transportation by air.

REPORT

NEW ZEALAND. (1950.) **Animal Research Division, Department of Agriculture. Annual Report for 1948–49.** [Filmer, J. F.] pp. 46. Wellington: R. E. Owen, Govt. Printer. **3110**

In this report of the Director, Animal Research Division, dealing with diagnostic and research work for the year ended 31.3.49, short summaries are given of progress of studies, including:—sheep breeding; influence of ram on weight and quality of fat lambs; nutrition of the breeding ewe; STERILITY in two-tooth breeding ewes; deaths among new-born lambs; comparison of various pastures for ewes and lambs; supposed rachitogenic factor in green oats; FACIAL ECZEMA and *Cl. chauvoei* INFECTION; artificial insemination of dairy cattle; identical twins; dairy cow nutrition and "CALF SCOURS"; pasture management and lifetime performance of dairy cows; winter nutrition studies and measurement of pasture intake; milking methods; treatment of MASTITIS with penicillin; TRICHOMONIASIS; KETOSIS and GRASS-STAGGERS; TALL-FESCUE POISONING; nutrition and lactation in pigs; trace elements, aerial topdressing with cobalt, toxicity of cobalt to sheep, and copper and molybdenum; parasitology; SALMONELLA INFECTIONS; biochemistry, including digestibility studies on New Zealand foodstuffs, and "unknown" water-soluble fractions in fodder plants.—J. F. FILMER.

BOOK REVIEWS

DUBOS, R. J. (1951.) **Louis Pasteur. Free lance of Science.** pp. 418. London: Victor Gollancz, Ltd. 18s. **3111**

As an eminent bacteriologist who has made important contributions to our knowledge and as a Frenchman, Dubos is particularly well qualified to write a book on Pasteur.

The book is not only the story of Pasteur's life and work but an assessment of the historical background of his times and of the qualities of intellect and character which contributed to his success.

A most interesting and enjoyable book which can be especially recommended to young people entering upon a life of research in any of the biological sciences.—M. C.

BAUER, K. H. (1949.) Das Krebsproblem. Einführung in die allgemeine Geschwulstlehre für Studierende, Ärzte und Naturwissenschaftler. **[The problem of cancer. Introduction to the pathology of tumours for students, medical practitioners and natural scientists.]** pp. ix+758. Berlin, Göttingen & Heidelberg: Springer-Verlag. DM. 42.— & DM. 45. 60. **3112**

This book consists of three main sections dealing with the nature, causes and control of cancer. There are chapters on statistics, pathology, biochemistry, heredity, the relation of cancer to parasites, bacteria and viruses; carcinogenic chemicals; physical causes of cancer; the mutation theory; diagnosis, treatment, cure and prophylaxis. A useful bibliography is given at the end of each chapter. There are 71 illustrations, some of which are in colour and there is an author and a subject index.—E. G.

KOEGEL, A. (1951.) Zoonosen (Anthropozoonosen). Die für Mensch und Tier gemeinsam wichtigen Krankheiten. **[Animal diseases communicable to man.]** pp. 243. Basle: Ernst Reinhardt Verlag AG. Sw. fr. 8.80 or 11.—. **3113**

The word "Zoonosen" which of course means simply diseases of animals is nowadays being used as if it meant those diseases of animals which are transmissible to and from man.

The author objects to this misuse of the word but reluctantly accepts it for lack of a better word. His own suggestion, namely "Anthropozoonosen" he rejects as too long.

Having accepted the word he then extends the meaning so that this book deals with diseases of animals transmissible to and from man and also with parasites, both helminths and arthropods, which are or may on occasion be common to animals and to man. More than half of the book is concerned with parasites. The object is to convey information on subjects which are on the borderlines of human and veterinary medicine.—M. C.

REINHARDT, R. (1950.) Lehrbuch der Geflügelkrankheiten. **[Textbook of poultry diseases.]** pp. 384. Hanover: M. & H. Schaper. 4th Edit. DM. 22.—. **3114**

In this useful book on poultry diseases and their treatment, intended as a text and reference book for veterinary practitioners and students, the subject matter is divided into sections on infectious diseases, parasitic diseases, poisoning, diseases of organs, nutritional and metabolic disorders, diseases of the endocrine system, neoplasms and surgery and vices. There is also an

appendix on general hygiene, sale of poultry and administration of drugs. References are given at the ends of the chapters and there is an alphabetical index. There are 142 drawings and photographs and three coloured plates. Paper, print and binding are very good.—E. G.

SELYE, H. [M.H., Ph.D. (Prague), D.Sc. (McGill), F.R.S. (Canada) Prof. & Director of the Institut de Médecine et de Chirurgie expérimentales Université de Montréal. (1950.) **The physiology and pathology of exposure to stress. A treatise based on the concepts of the general-adaptation-syndrome and the diseases of adaptation.** pp. xx+822+203 R. Montreal, Canada: Acta, Inc. 105s. **3115**

This is a very difficult book to assess. First of all it is not easy to read as the style is more that of a hastily compiled note book than of a considered monograph. The very unorthodox views of the author raise doubts and these doubts tend to increase as one reads of the multiplicity of diseases and effects which are attributed to a common cause.

The central theme is what S. calls the General Adaptation Syndrome resulting from stresses. The stresses are of various kinds such as cold, fatigue, infections, intoxications and they cause somatic changes, namely an involution of the thymus and lymphatic system, ulceration of the stomach and intestine and enlargement of the adrenal cortex. The immediate response to stress is the alarm-reaction, which is followed by the stage of resistance provided the animal has become adapted to the stress. If exposure to the stress is over-prolonged then the stage of exhaustion supervenes. The sum of all the phases is the general adaptation syndrome.

In spite of its unorthodoxy, or perhaps because of it, this book is stimulating and will repay reading.—M. C.

WIRTH, D. & DIERNHOFER, K. (1950.) Lehrbuch der inneren Krankheiten der Haustiere einschliesslich der Hautkrankheiten sowie der klinischen Seuchenlehre. **[Veterinary clinical medicine.]** pp. xx+1164. 2nd Edit. Stuttgart: Ferdinand Enke. DM. 85 or DM. 89. **3116**

This massive textbook of over one thousand pages deals successfully with the subject of internal and skin diseases of the domestic animals. It also includes chapters on the infectious and parasitic diseases and so is encyclopaedic in scope.

The layout is conventional and in accordance with the body systems with regard to the diseases of individual organ systems and the last 400 pages are devoted to the infectious and parasitic groups.

The first edition appeared in 1943 and this second one contains some additional items in text and figures, but is evidently not greatly different. The teaching is adequately comprehensive and appears to be very sound and excellent for reference purposes. However, when the new antibiotics have been developed on the veterinary side of medicine wholesale and detailed revisions will be called for. Even now the text is somewhat out of date in respect of penicillin and of the new insecticides.

The paper, printing and binding are of the highest standard and the book is highly recommended.—J. EDWARDS.

BOLZ, W. [Professor of Surgery, Giessen Veterinary School.] (1951.) Lehrbuch der allgemeinen Chirurgie für Tierärzte und Studierende. **[Textbook of general surgery for veterinarians.]** pp. xvi+498. Stuttgart: Ferdinand Enke. 2nd revised Edit. DM. 43.40. (bound). **3117**

The first edition of this book appeared towards the end of the second world war and was not written under favourable conditions. It has been revised so as to include advances reported outside Europe during the war, principally in chemotherapy and so this second edition is not seriously out of date in this respect.

The book represents a " shorter handbook " on general veterinary surgery and is, within its scope, a well-balanced and well-illustrated text. Paper, binding and printing are of the highest quality.

Although all the domestic quadrupeds figure in the book, emphasis is on the horse which has not receded in importance in agricultural economy in Germany as in a few other countries. The teaching is comprehensive and orthodox and does not call for criticism in points of detail. The book is packed with accumulated knowledge and the numerous original photographs are an important educative feature. The author's high reputation is well upheld and the book is well worth its place in the library of veterinary surgery.—J. EDWARDS.

KIRK, H. (1951.) **Index of treatment in small-animal practice.** pp. ix+826. London: Baillière, Tindall & Cox. 2nd Edit. 40s. **3118**

This handbook for small animal practitioners is in three sections. The first deals with general therapeutics, the second extending over some 600 of the total 775 pages is an index of treatment arranged alphabetically and the third contains information on a variety of subjects ranging from nursing the sick to rat extermination.

The style is graphic and often unorthodox, for example proprietory names of drugs are freely used with the names of the firms which supply them. When dealing with diseases which do not occur in the U.K. the author is not at his best. His treatment for prevention of rabies in a dog bitten by a rabid dog is of exceptional severity and the use of a tourniquet is surely unlikely to be of any value, nor can dogs be rendered immune to *Babesia canis* infection with serum from recovered dogs.—M. C.

TUBIANA, M. (1950.) Les isotopes radioactifs en médecine et en biologie. **[Radio-active isotopes in medicine and biology.]** pp. ix+391. Paris: Masson & Cie. Fr. 1800. **3119**

The rapidly growing interest in the use of radio-active isotopes in research and also in treatment of disease ensures a welcome for this book. The book is the result of a prolonged visit to the U.S.A. by the author where he had opportunities of meeting many of the workers in this subject and of consulting the rapidly increasing literature.

The book is in three sections, one dealing with the theory and techniques of the subject, one with the use of isotopes in research and one with their use in medicine. The first and second of these sections will be of special interest to veterinary research workers.—M. C.

BISHOP, D. W., BROWN, F. A., Jr., JAHN, T. L., WULFF, V. J. & PROSSER, C. L. [Edited by.] (1950.) **Comparative animal physiology.** pp. ix+888. Philadelphia & London: W. B. Saunders Co. 63s. **3120**

This volume represents one of the few attempts which have been made to produce a comprehensive textbook on comparative physiology and for its production the services of three physiologists, a biologist and a zoologist have been called upon. It may be said at once that the authors have produced a text-book which will undoubtedly become a standard work for students taking advanced courses in comparative physiology and as a reference book for research workers it will also find a welcome.

The arrangement follows the usual pattern, separate chapters being devoted to each subdivision of the subject such as nutrition, respiration, endocrine mechanisms, nervous systems, etc. In each, the particular subject is treated as a whole, being illustrated by the findings recorded from the lowest to the highest forms of animal life. Wherever possible, the assistance that comparative physiology can give to the elucidation of the problem of evolution is also considered. Such an approach clearly brings out the fact that there is only one " physiology ", but for the physiologist who has tended to specialize there are some surprising omissions. For example, little is said about reproduction, and the significance of milk in nutrition is not mentioned whereas the newer findings concerning the effect of hormones on insect metamorphosis are considered in detail. However, this is merely a question of outlook and emphasis and on the whole the book gives a clear picture of animal physiology.—J. A. NICHOLSON.

FLYNN, J. E. [Department of Pathology, College of Physicians & Surgeons, Columbia University.] [Edited by.] (1950.) **Blood clotting and allied problems.** Transactions of the Third Conference January 23–24, 1950, New York, N.Y. pp. 224. New York: Josiah Macy. Jr. Foundation. $3.00. **3121**

This volume contains an account of the third conference organized by the Josiah Macy Jr. Foundation on problems of blood clotting. The usual practice of giving the main papers followed by a *verbatim* record of the discussions is again adopted. Whilst this arrangement gives a good impression of the train of thought of the speakers, for the general reader, it would be helpful if the main points of both papers and discussions were summarized at the end of each section.

This conference mainly concerned itself with a consideration of anticoagulants having a prothrombopenic action similar to dicumarol. The objection to the clinical use of dicumarol is its prolonged action so that the introduction of agents with a less permanent effect would be of great value. The most promising of these appear to be phenylindanedione (P.I.D.) and the acetic acid ethyl ester of dicumarol known commercially as pelentan or tromexan. In addition, the use of vitamin K in dicumarol therapy, the effect of glass and other surfaces on blood coagulation and the methods of prothrombin determination were also discussed.

—J. A. NICHOLSON.

RALLI, E. P. [Edited by.] (1950.) **Adrenal cortex.** (Transactions of the First Conference November 21–22, 1949.) pp. 189. New York: Josiah Macy, Jr. Foundation. $2.00. **3122**

This small book reports the papers read at a conference with the discussions in the form of questions and answers. The subjects dealt with were relation of chemical structure of cortical hormones to biological activity; regulation of cortical secretion; clinical study of cortisone and ACTH; steroid metabolism in the cortex; and relation of vitamins to cortical function.—M. C.

LERNER, I. M. (1950.) **Population genetics and the animal improvement as illustrated by the**

inheritance of egg production. pp. xviii+342. Cambridge: The University Press. 30s. **3123**

This book really serves two purposes, it is primarily a textbook of population or herd genetics but since the inheritance of egg producing ability in the domestic fowl is the material used to illustrate the theory it is also a book for the practical poultry breeder.

The genetical improvement of the flock or herd rather than the production of outstanding individuals is a problem of great economic importance and this book will repay study.

Viability or disease resistance as an important factor affecting flock production is the subject of a short chapter. On this subject the author is of the opinion that eradication based on breeding techniques offers little promise of practical utility when applied against diseases which are not endemic or which can be controlled by other means. The position is different for diseases such as fowl paralysis, for which no effective preventive or control measures are available. Genetical selection against fowl paralysis in the author's view can only be expected to produce a strain relatively resistant to the disease, but even a relative resistance may be economically worthwhile. One difficulty facing the breeder is the impossibility of distinguishing between the completely resistant and the completely susceptible individual unless he maintains a high level of exposure to infection in his flock. To carry out such a programme effectively the breeder would have to maintain a highly susceptible line along with the resistant line. The expense of such an undertaking makes it impossible for many breeders. Many challenging or stimulating opinions are expressed, an example being the statement: " the conclusion is unavoidable that, with proper selection, pullet breeding is a more efficient method of improvement of egg production than exclusive breeding from hens."

There is a good bibliography and author index and a useful glossary of symbols and definitions.—M. C.

JEAN-BLAIN, M. (1950.) Traité de zootechnie générale. Tome I. Génétique générale. **[Treatise on general zootechny. Vol. 1.]** pp. 207. Paris: Vigot Frères. Fr. 880. **3124**

A very useful compilation on the theory of genetics and of the application of genetics to the breeding of livestock. To the veterinarian the section dealing with the hereditary diseases and defects will perhaps be of most interest. One is rather surprised to find six pages devoted to the refutation of the theory of telegony; that seems unnecessary at the present time.

There is a good bibliography and a short subject index.—M. C.

TROW-SMITH, R. (1951.) **English husbandry. From the earliest times to the present day.** pp. 239. London: Faber & Faber, Ltd. 18s. **3125**

This is an entirely readable account of English husbandry from the earliest times to the present day. Much of the book is concerned with the husbandry of livestock; there is a great deal of information from not readily available sources which will interest veterinarians.

To-day when the rapid decline of the farm horse is so frequently deplored it comes as something in the nature of a surprise to learn that it is not long ago since the horse replaced the ox as the working animal on our farms and as recently as the end of the 18th century the relative merits of oxen and horses were keenly debated. It is of interest to be reminded that the rinderpest epidemic of the 1860's resulted in the establishment of the first government service to be purely concerned with a farm function: this was of course the cattle plague section of the Home Office and the progenitor of the Ministry of Agriculture and Fisheries. There are one or two small blemishes which are not of very serious import but do mar the general high standard. For example, geneticists will not agree with the dictum " Milking capacity is held to be mainly inherited from the sire ".—M. C.

MEYER, E. 1949. Farbe und Abzeichen bei Pferden. **[Colour and markings of horses.]** pp. 88. Hanover: M. & H. Schaper. DM. 4.60. **3126**

A little book on the importance of colour and markings in the identification of horses, with over 80 illustrations and an alphabetical index. —E. G.

CAMERON, G. [Dept. of Biology, Washington Square College, New York University.] (1950.) **Tissue culture technique.** pp. xii+191. New York: Academic Press Inc. 2nd Edit. revised & enlarged. $4.20. **3127**

This second edition has been considerably revised and enlarged and includes a chapter by Grand, C. G. on the photomicrography of tissue culture.

The illustrations are excellent and the text marked by its clarity of style.

Detailed information is given on all aspects of the various appliances, materials and techniques used in tissue culture.

An excellent book both for students and specialists.—M. C.

JAULMES, C., JUDE, A. & QUÉRANGAL DES ESSARTS, J. (1951.) Pratique du laboratoire. Techniques générales—diagnostics biologiques—hématologie—sérologie—parasitologie et entomologie médicales—technique anatomo-pathologique. **[Laboratory technique.]** pp. viii+699. Paris: Masson & Cie. Fr. 2500 or 3000. **3128**

Written as a laboratory manual for the medical services of the French army, navy and air force this book is the result of the collaboration of a number of specialists. It deals with the laboratory techniques of bacteriology, haematology, serology, parasitology, pathology and biochemistry.

The approach is essentially practical and the volume is an excellent guide for laboratory technicians. The illustrations are clear, there are numerous useful tables and an adequate index.—M. C.

SCHÖNBERG, F. [Revised by.] (1951.) Klimmer-Schönberg. Milchkunde und Milchhygiene. **[Dairy science and milk hygiene.]** pp. 348. Hanover: M. & H. Schaper. 6th revised enlarged edition. DM. 28.–. **3129**

There are six sections dealing respectively with economic aspects of the milk industry, general characteristics of milk, chemical composition, milk hygiene, bacterial content and pollution by faeces, dust, etc., milk inspection and German legislation concerning milk and milk products.

Within these sections there are chapters on milk in relation to infectious diseases and bacteriological and chemical tests of milk from infected cows. There are also chapters on non-infectious diseases, excretion of drugs and poisons in milk, feeding and housing of cattle, hand and machine milking, pasteurization, general hygiene of personnel, etc. Each chapter is followed by brief extracts from German rules and regulations.

Microscopic, bacteriological, serological and other laboratory tests used in milk inspection are described in detail. There are 84 illustrations in the text, a table giving details of streptococci causing mastitis and a subject index. The paper and binding are good.—E. G.

SCHÖNBERG, F. [Dr. med. vet., o. Professor und Direktor des Instituts für Lebensmittelkunde und Milchhygiene an der Tierärztlichen Hochschule zu Hannover.] (1950.) Die Untersuchung von Tieren stammender Lebensmittel. Eine Anweisung für die tierärztliche Praxis im Aussendienst und im Laboratorium. **[Inspection of food stuffs of animal origin. Veterinary practice in the field and in the laboratory.]** pp. 314. Hanover: M. & H. Schaper. 6th Edit. DM 19.—. **3130**

This sixth revised edition contains in clear, concise form chapters on inspection of fresh meat, preserved meat products, lard, bacon, sausage, poultry, game, fish, shellfish and eggs, followed by an appendix of extracts from German legislation concerning meat inspection and food hygiene. There are 117 illustrations and bibliographies are listed at the ends of chapters. Paper and binding are good—E.G.

RICHARDSON, C. [F.W.C.F. Farrier Instructor to Shropshire C.C.] (1950.) **Practical farriery. A guide for apprentices and junior craftsmen.**—pp. xi+74. London: Sir Isaac Pitman & Sons, Ltd. 8s. 6d. **3131**

A short, very practical manual for the apprentice farmer. The main points of the anatomy of the bones and tendons of the feet and legs are described as are the diseases of their structure. Surgical shoeing is dealt with in a very helpful chapter.—M.C.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

BEDSON, S. P., DOWNIE, A. W., MACCALLUM, F. O. & STUART-HARRIS, C. H. (1950.) **Virus and rickettsial diseases.** pp. viii+383. London: Edward Arnold & Co. 24s.

CAMERON, T. W. M. (1951.) **The parasites of domestic animals. A manual for veterinary students and surgeons.** pp. xvi+420. London: A. & C. Black Ltd. 2nd Edit. 38s.

DILLING, W. J. (1951.) **The pharmacology and therapeutics of the materia medica. (Bruce and Dilling's "Materia Medica and Therapeutics".)** pp. xxxii+598. London, Toronto, Melbourne, Sydney and Wellington: Cassel & Co. Ltd. 19th Edit. 21s.

FARRIS, E. J. (Edited by) (1950.) **The care and breeding of laboratory animals.** pp. xvi+515. New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd. 64s.

GLOAG, J. (1950.) **How to write technical books.** pp. x+159. London: George Allen & Unwin, Ltd. 12s. 6d.

GRUNDY, F. (1951.) **Preventive medicine and public health. An introduction for students and practitioners.** pp. 299. Luton: The Leagrave Press, Ltd. 18s.

HAWKER, L. E. (1950.) **Physiology of fungi.** pp. xvi+360. London: University of London Press, Ltd. 21s.

HENRICI, A. T. (Revised by Ordal, E. J.) (1948.) **The biology of bacteria. An introduction to general microbiology.** pp. xiv+577. New York: D. C. Heath & Co.; London: George G. Harrap & Co. Ltd. 3rd Edit. 30s.

HERMS, W. B. (1951.) **Medical entomology. With special reference to the health and well-being of man and animals.** pp. xvi+643. New York: The Macmillan Co. London: Macmillan & Co. Ltd. 4th Edit. 67s. 6d.

KNIGHT, R. L. & BOYNS, B. M. (1950.) **Agricultural science in the Sudan. A bibliography with abstracts.** pp. 251. Arbroath: T. Buncle & Co. Ltd. 20s.

LEAHY, J. R. & BARROW, P. (1951.) **Restraint of animals.** pp. xii+235. Ithaca, N.Y.: Leahy & Barrow.

LUCK, J. M., LORING, H. S. & MACKINNEY, G. (Edited by.) (1951.) **Annual review of biochemistry. Vol. XX.** pp. ix+648. Stanford, California: Annual Reviews Inc. $6.00.

MELENDEZ, R. D. (Edited by.) (1949.) **Spanish and English glossary of dairy and related terms.** pp. 47. Washington, D.C.: Dairy Industries Society International.

MESSIERI, A. (1950.) Elementi di medicina veterinaria legale. Cap. III. Il medico veterinario nella funzione di clinico, di arbitro e di consulente tecnico nella contrattazione degli animali (Giurisprudenza veterinaria). **[Elements of legal veterinary medicine.]** pp. 167. Faenza: Fratelli Lega. L. 800.

MUNN, N. L. (1950.) **Handbook of psychological research on the rat. An introduction to animal psychology.** pp. xxvi+598. Boston, Mass.: Houghton Mifflin Co. $7.50.

NELSON, A. (1951.) **Medical botany. A handbook for medical men and all who are concerned in the use of plants: nutritionists, dieticians, pharmacists and veterinarians.** pp. xi+544. Edinburgh: E. & S. Livingstone, Ltd. 30s.

ROBINSON, F. A. (1951.) **The vitamin B complex.** pp. 688. London: Chapman & Hall. 60s.

RUSS, S., CLARK, L. H. & PELC, S. R. (1950.) **Physics in medical radiology.** pp. viii+296. London: Chapman & Hall, Ltd. 2nd Edit. revised. 25s.

SCHEUNERT, A. & TRAUTMANN, A. (1951.) Lehrbuch der Veterinär-Physiologie. **[Textbook of veterinary physiology.]** pp. xi+486. Berlin: Paul Parey. 3rd revised Edit. DM. 38.60.

STECK, W. (1951.) Grundriss der inneren Krankheiten des Pferdes. Klinische Diagnostik und kurzgefasste Übersicht. **[Internal diseases of the horse. Clinical diagnosis and brief review.]** pp. 166. Basle: Ernst Reinhardt Verlag AG. Sw. fr. 7.60. or 9.80.

SUMNER, J. B. & MYRBÄCK, K. (Edited by.) (1951.) **The enzymes. Chemistry and mechanism of action. Vol. II, Part I.** pp. xi+790. New York: Academic Press Inc. $14.00.

SYKES, F. (1951.) **Food, farming and the future.** pp. 294. London: Faber & Faber. 21s.

TANNENBAUM, A. (Edited by.) (1951.) **Toxicology of uranium. Survey and collected papers.** pp. xxvi+333. New York, Toronto & London: McGraw-Hill Book Co., Inc. $3.00 (25s. 6d.).

TIDY, H. & SHORT, A. R. (Edited by.) (1951.) **The medical annual 1951. A year book of treatment and practitioners' index.** pp. xlii+420. Bristol: John Wright & Sons Ltd.: London: Simpkin Marshall Ltd. 69th year.

WHATMOUGH, W. A. (1951.) **The chemist and druggist poisons guide. An encyclopaedia of poisons law. Vol. I. Poisons list and key.** pp. 89. London: The Chemist and Druggist. 20s.

WILSON, K. (1951.) **Kit Wilson's cat encyclopedia.** pp. 175. Kingswood, Surrey: Andrew George Elliot (Right Way Books). 6s.

ANON. (1951.) **Medical Books [List of].** pp. 80. Edinburgh: E. & S. Livingstone Ltd.

ANON. (1951.) **The yearbook of the Universities of the Commonwealth, 1951.** pp. xxxi+1416. London: G. Bell & Sons, Ltd. 37s. 6d.

ANON. (1951.) **Addendum 1951 to the British Pharmacopoeia, 1948.** pp. xvii+114. London: Constable & Co. Ltd. 45s.

Text printed in Great Britain at the Church Army Press, Cowley, Oxford